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A Fish Habitat Survey Of The Jacquet River Watershed, Restigouche County, N.B. Volume 3: Estimated Fish Densities and Biological Data for Salmonid Specimens

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Les rapports statistiques sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

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ABSTRACT

Ritchie, W.B., 1989. A Fish Habitat Survey of the Jacquet River Watershed, Restigouche County, N.B. Volume 3 - Estimated Fish Densities and Biological Data for Salmonid Specimens. Can. Data Rep. Fish. Aquat. Sci. 724 (Vol.3), 81p.

This report, Volume 3 of a four volume series, is a compilation of fisheries data collected on the Jacquet River system in August, 1984. Electrofishing data, estimates of fish density and biological data collected from sampled fish are presented.Other topics are :

Volume 1 - Hydraulic and Physiographic Data
Volume 2 - Water and Sediment Chemistry Data
Volume 4 - Species Composition and Relative Abundance of Benthic Macro-invertebrates

RESUMÉ

Ritchie, W.B., 1989. A Fish Habitat Survey of the Jacquet River Watershed, Restigouche County, N.B. Volume 3 - Estimated Fish Densities and Biological Data for Salmonid Specimens. Can. Data Rep. Fish. Aquat. Sci. 724 (Vol.3), 81p.

Ce rapport, le troisième d'une série de quatre volumes consiste d'une compilation de données sur les pêches recueillies sur le réseau hydrographique Jacquet en août 1984. Des données sur la pêche électrique, des devis sur la densité de poissons et des données biologiques recueillies à partir d'échantillons de poissons sont présentés. D'autres sujets sont:

Volume 1 - Hydraulic and Physiographic Data
Volume 2 - Water and Sediment Chemistry Data
Volume 4 - Species Composition and Relative Abundance of Benthic Macro-invertebrates

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INTRODUCTION

The Jacquet River, a medium sized salmon stream approximately 50 km in linear length in Restigouche Co., New Brunswick contains ideal spawning and rearing habitat for Atlantic salmon *(Salmo salar)*. With the exception of logging activity, the watershed is largely undeveloped. In 1965, Brunswick Mining and Smelting, Ltd. installed a water intake structure approximately 2 km from the mouth of the Jacquet River. They are presently operating on a water license from the New Brunswick Department of Fisheries and Environment (now the N.B. Dept. of Municipal Affairs and Environment). This license, renewed in 1974, expiring in 1979 and not since renewed, entitles them to withdraw 39312 cu. meters/day for their consumption in the lead smelter and the fertilizer plant as well as for domestic use in two adjacent town sites in Belledune.

Five previous studies of the river have been undertaken within the last twenty years. Three were qualitative in scope offering visual descriptions of available habitat and fish present (Smith 1956, N.B.D.N.R. (unpublished 1969 report), and IEC Beak 1984). Two studied the micro-habitat requirements of salmon in the area downstream from the water intake station (Morantz 1983, IEC Beak 1982). None of these studies presented quantitative data for water or sediment quality or hydrology.

In August, 1984, the Gulf Region's Fish Habitat Division conducted a survey on the Jacquet River to determine site-specific baseline conditions for hydrology, water chemistry, sediment chemistry, fish and macro-invertebrate populations, and habitat quality. The area of study consisted of 24 sites along the main stem of the river and seven of its major tributaries: Big Hole Brook, Antinouri Lake Brook, Lower South Branch, Lower McNair Brook, Upper South Branch, Upper McNair Brook and Rocky Brook. This report, the third in a series of four data reports, presents the fisheries data collected on the survey.

MATERIALS AND METHODS

Fish sampling within the Jacquet River watershed was conducted at study site locations selected according to criteria described in Volume 1 of this series. As these study sites included both stream reaches and lakes, electrofishing units and gill nets were deployed for fish sampling.

Twelve sites, located on the main Jacquet River and its major tributaries, were selected for fish population density studies using electrofishing techniques. Stream reaches within the study sites, which were accessible and representative of typical salmonid habitat, were selected. The actual area of these sites varied according to stream features and accessibility but, where possible, areas of 250 - 350 m^2 were chosen.

Prior to electrofishing, these sites were enclosed by nylon barrier nets which spanned the stream at both upstream and downstream site boundaries, preventing the passage of fish to and from the site.

Two back-pack mounted Smith-Root electrofishers (Type 8 and Type 11) supplied by Smith-Root Inc., Vancouver, Wa., USA, providing pulsating direct current were used. An output voltage range of 450 - 600 volts was selected according to water conductivity and a frequency range of 60-120 pulses per second in order to obtain a desired galvanotaxic response in fish. Three to four sweeps or passes through the site were made by working across the stream from the downstream barrier to the upstream barrier. Sweeps were timed as equally as possible in order to maintain consistent effort. Fish were captured by means of a dip net (described by Ducharme, 1969) and a Pollet apron seine (described by Elson, 1962).

At the end of each sweep, fish were identified, counted and transferred to a location outside of the enclosed area. A representative sample of fish was collected from each site and preserved in a 10% formaldehyde solution for laboratory analysis at a later date.

Upon completion of electrofishing, the remainder of the fish were released within the study sites.

Eight study sites, located on smaller tributaries within the Jacquet River watershed were selected for electrofishing spot checks. At these sites, nylon barrier nets were not used and one sweep was made over a designated area of typical and accessible salmonid habitat in order to determine species composition. Captured fish were identified, counted, and released.

Fish were sampled in two lakes by gill netting. Nylon gill nets, 7.6 m in length, of mesh sizes between 1.3 and 8.9 cm were set in gangs up to 100 m long at selected sites in lakes. Biological data, including length, weight, and sex were collected from captured fish in the field.

All preserved specimens were analyzed in the laboratory in order to obtain biological data including length, weight, age, sex, and stomach contents. Lengths were measured with the use of a fish measuring board supplied by Wildco Ltd. Fish were weighed with a Mettler model PE360 electronic balance. Age was determined by examining 10 - 20 scales from each speci-

men with the use of a micro-projector. Specimens were dissected in order to determine sex and stomach contents, with the aid of a Wild M3 dissecting microscope.

Electrofishing data were compiled and analyzed where applicable. Population estimates and densities of fish were calculated using Zippen's removal method of population estimation described by Seber (1982).

RESULTS

Electrofishing data collected from fish population density sites and spot check sites were compiled and presented in tabular form. Estimated fish densities were also tabulated. The removal method of population estimation was used, where possible, for salmonid densities and total numbers of fish at each site. For individual non-salmonid species and for cases where salmonid data were not suited to the application of the formula, densities were calculated using the total number of fish captured and are expressed as "minimum density per 100 m^2".

Biological data collected from preserved specimens of Atlantic salmon and brook trout were also compiled and presented in this report in tabular form. Stomach contents of specimens were identified, where possible, to order and family. Codes used are presented at the foot of each table.

Fish were identified using criteria described by Robins et al (1980) and Scott & Crossman (1973). Table 3.57 lists all species captured and their common names.

ACKNOWLEDGEMENTS

The author wishes to thank R. Alexander and L. Anthony who provided valuable criticism of the manuscript. Appreciation is also extended to Dr. R. Randall and Dr. J. Wright for their advice on fish density calculations and to L. Haight who provided the site drawings and assisted on the electrofishing crew.

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FIG. 3.1 LOCATION OF SAMPLING SITES, JACQUET RIVER WATERSHED, AUGUST 1984

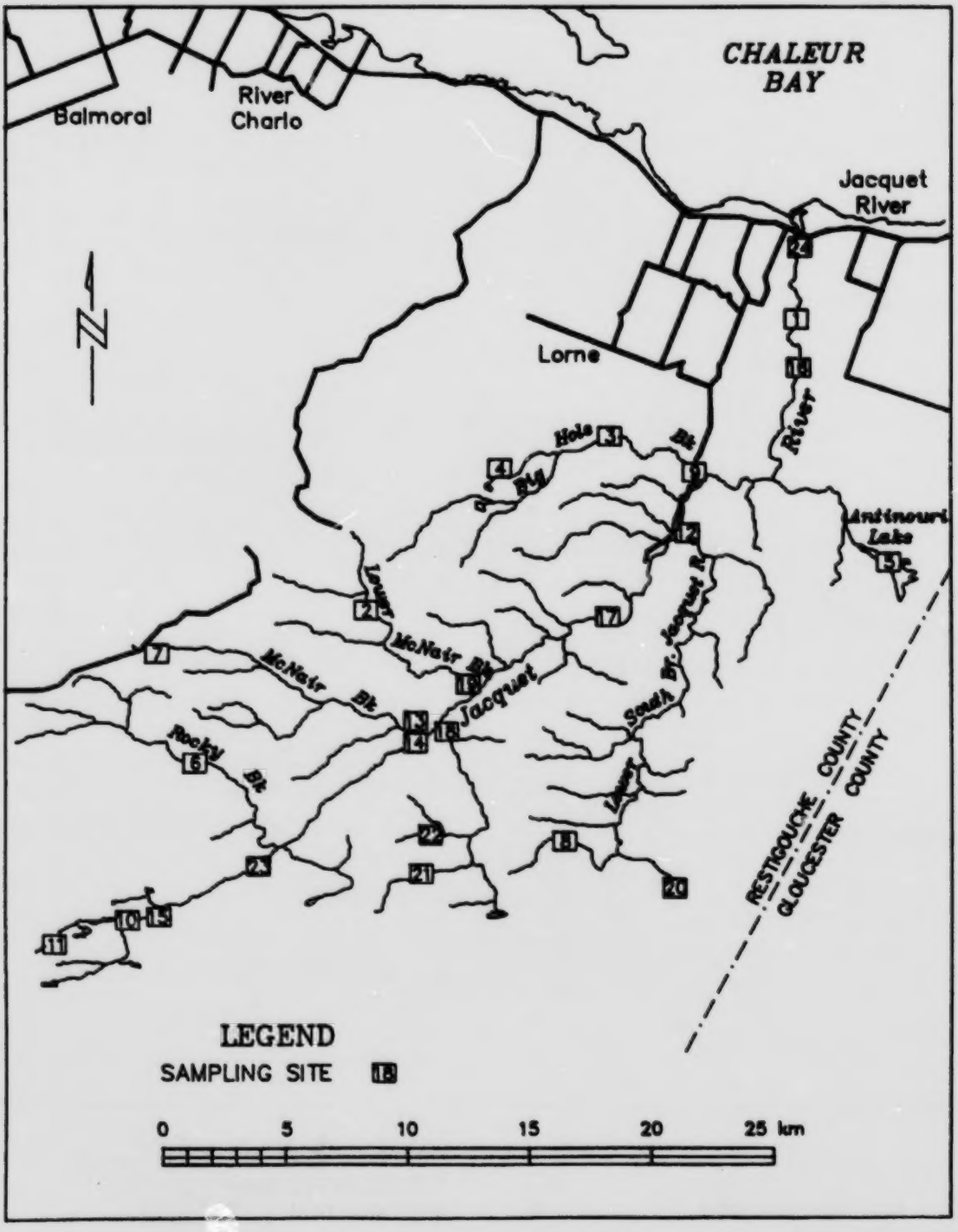
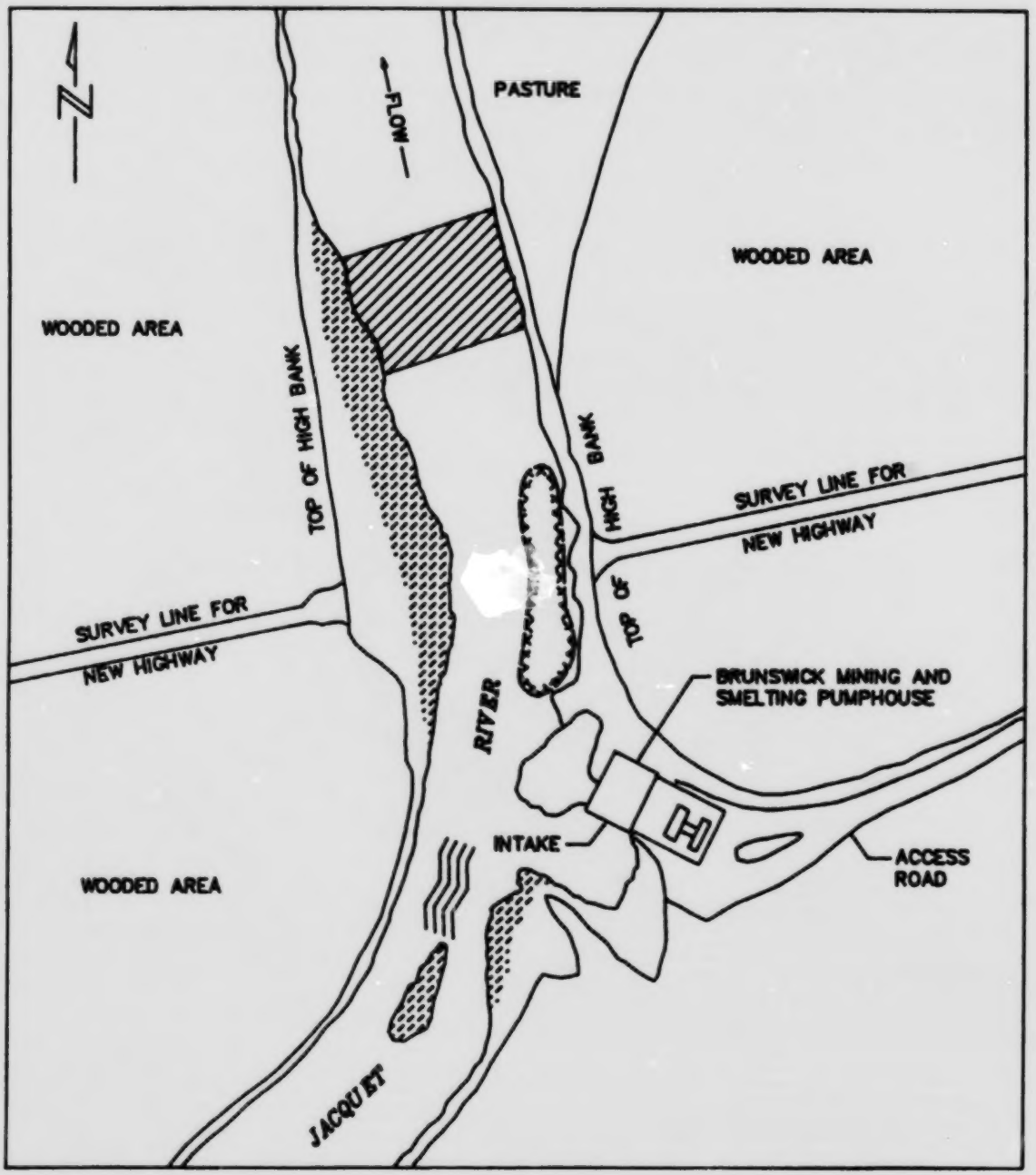


FIG. 3.2 FISH SAMPLING STATION, SITE 1, JACQUET RIVER, AUGUST 9,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 10 20 m (APPROX.)

TOPOGRAPHIC MAP 21-O/16

MILITARY GRID 223 093

TABLE 3.1

ELECTROSEINING DATA

SITE 1, JACQUET RIVER
August 9, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (40)	Sweep 2 (47)	Sweep 3 (40)	Sweep 4 (40)	Total
Atlantic Salmon					
fry	7	13	12	14	46
small parr	8	8	8	5	29
large parr	2	1	2	0	5
total parr	10	9	10	5	34
Brook Trout	0	1	0	0	1
Cyprinidae	3	1	6	3	13
American Eel	3	6	3	1	13
Threespine Stickleback	1	0	0	0	1
Slimy Sculpin	0	1	0	0	1
Total Fish	24	31	31	23	109

TABLE 3.2

ESTIMATED FISH DENSITIES

SITE 1, JACQUET RIVER
August 9, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry	46			8.53
small parr	29			5.38
large parr	5			0.92
total parr	34			6.31
Brook Trout	1			0.20
Cyprinidae	13			2.40
American Eel	13			2.40
Threespine Stickleback	1			0.20
Slimy Sculpin	1			0.20
TOTAL FISH*	109			20.22

*Sampling Area - 539m²
Removal Method of Population Estimation not Applied

TABLE 3.3

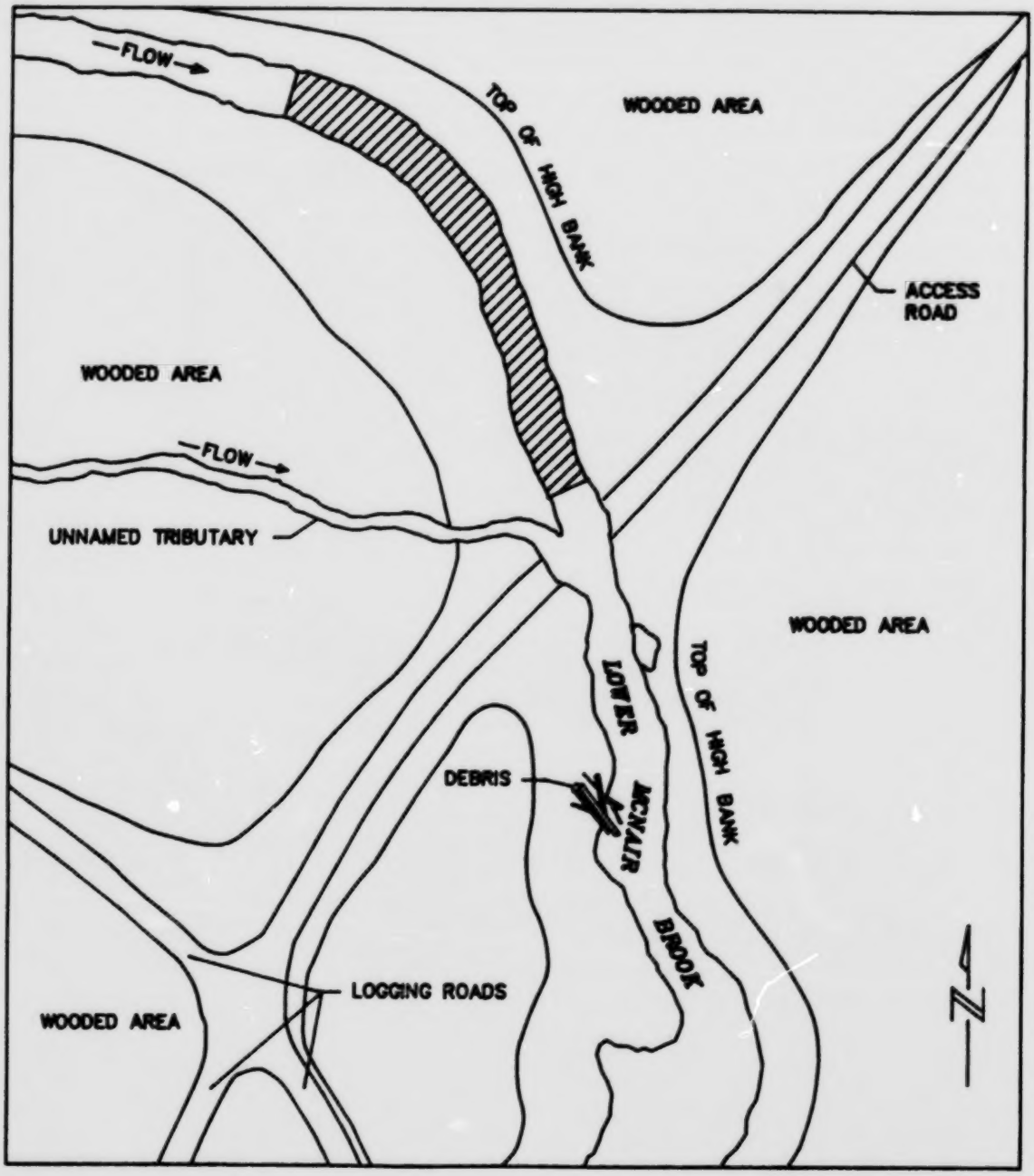
LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 1, JACQUET RIVER
August 9, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	10.5	9.7	11.05	F	1+	T	(F)
2	13.4	12.3	25.29	M	2+	P	(P)
3	10.3	9.6	12.78	M	1+	Ch	(P)
4	10.3	9.5	11.97	F	1+	T	(P)
5	10.1	9.4	10.78	M	1+		(E)
6	10.0	9.3	10.74	M	1+	0	(P)
7	10.0	9.2	10.08	M	1+	T	(F)
8	9.3	8.6	8.41	M	1+	T	(P)
9	5.9	5.4	2.29	M	0+	E	(F)
10	5.7	5.3	1.94	UD	0+	0,E	(F)
11	5.6	5.0	2.07	M	0+	E	(F)
12	5.1	4.7	1.53	F	0+	E	(F)

Stomach Contents: (E) Empty, (P) Partial, (F) Full
E-Ephemeroptera, Ch-Chironomidae, O-Odonata
P-Plecoptera, T-Trichoptera

FIG. 3.3 FISH SAMPLING STATION, SITE 2, LOWER MCNAIR BROOK, AUGUST 10,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 10 20 m (APPROX.)
TOPOGRAPHIC MAP 21-O/16
MILITARY GRID 052 956

TABLE 3.4

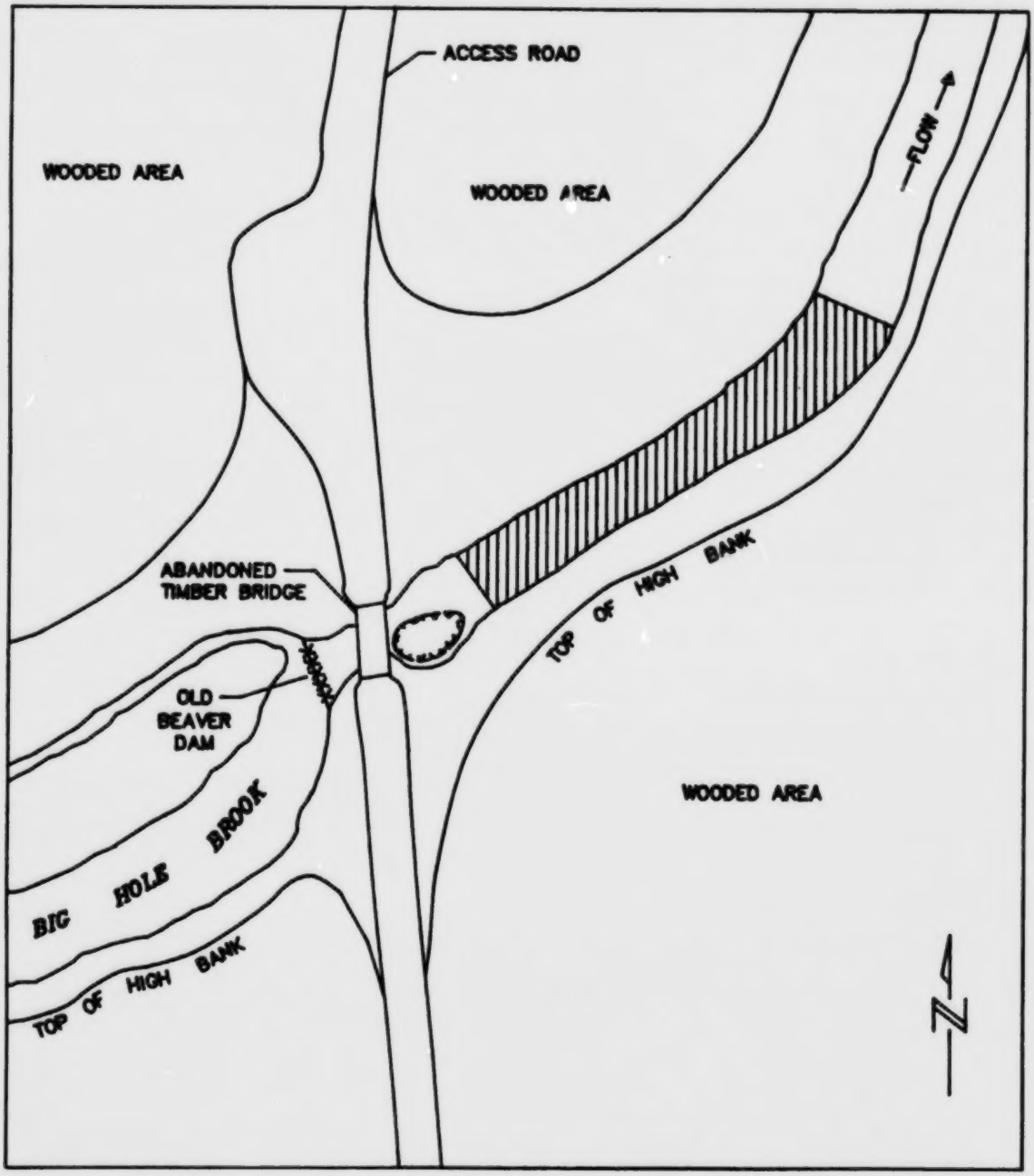
ELECTROSEINING DATA

SITE 2, LOWER MCNAIR BROOK
August 10, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1	Sweep 2	Sweep 3	Sweep 4	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout					
Cyprinidae					
American Eel					
Threespine Stickleback					
Slimy Sculpin					
Total Fish	0				0

Spot Check
No Fish Present (Salamanders Captured)

FIG. 3.4 FISH SAMPLING STATION, SITE 3, BIG HOLE BROOK, AUGUST 11,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 5 10 15 m (APPROX.)

TOPOGRAPHIC MAP 21-O/16

MILITARY GRID 139 019

TABLE 3.5

ELECTROSEINING DATA

SITE 3, BIG HOLE BROOK
August 11, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (9.4)	Sweep 2 (10.6)	Sweep 3 (7.4)	Sweep 4	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	65	22	9		96
Cyprinidae					
American Eel	1	1	0		2
Threespine Stickleback					
Slimy Sculpin					
Total Fish	66	23	9		98

TABLE 3.6

ESTIMATED FISH DENSITIES

SITE 3, BIG HOLE BROOK
August 11, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry				
small parr				
large parr				
total parr				
Brook Trout	96	100.73 (variance 13.42)	34.73	
Cyprinidae				
American Eel	2			0.70
Threespine Stickleback				
Slimy Sculpin				
TOTAL FISH*	98	102.89 (variance- 13.86)	35.48	

*Sampling Area - 290m²
95.2% of Estimated Population Captured after 3 sweeps.

TABLE 3.7

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 3, BIG HOLE BROOK
August 11, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	12.0	11.7	21.75	M	1+	D,C,E,	(F)
2	6.3	6.0	3.48	F	0+	E,T	(F)
3	6.8	6.5	3.93		0+	E,T	(F)
4	9.0	8.6	8.42	M	1+	C,Ch,E	(F)
5	4.4	4.2	1.09	F	0+	E	(P)
6	10.6	10.2	14.90	F	1+	Ch	(F)
7	5.9	5.7	2.60	M	0+	S,D,Ch,H	(F)
8	4.6	4.4	1.30	M	0+	E,P,Ch	(P)
9	9.1	8.7	8.49	F	1+	E,T,P	(F)
10	5.6	5.4	2.31	F	0+	E	(P)
11	5.8	5.6	2.27		0+	E	(P)
12	5.5	5.3	2.08	M	0+	E	(P)
13	12.0	11.4	19.34	M	1+	E,D	(F)

Stomach Contents: (F)-Full, (P)-Partial
C-Coleoptera, Ch-Chironomidae, D-Diptera,
E-Ephemeroptera, H-Heleidae, P-Plecoptera,
S-Simuliidae, T-Trichoptera

FIG. 3.5 FISH SAMPLING STATION, SITE 5, ANTINOURI LAKE, AUGUST 12, 1984

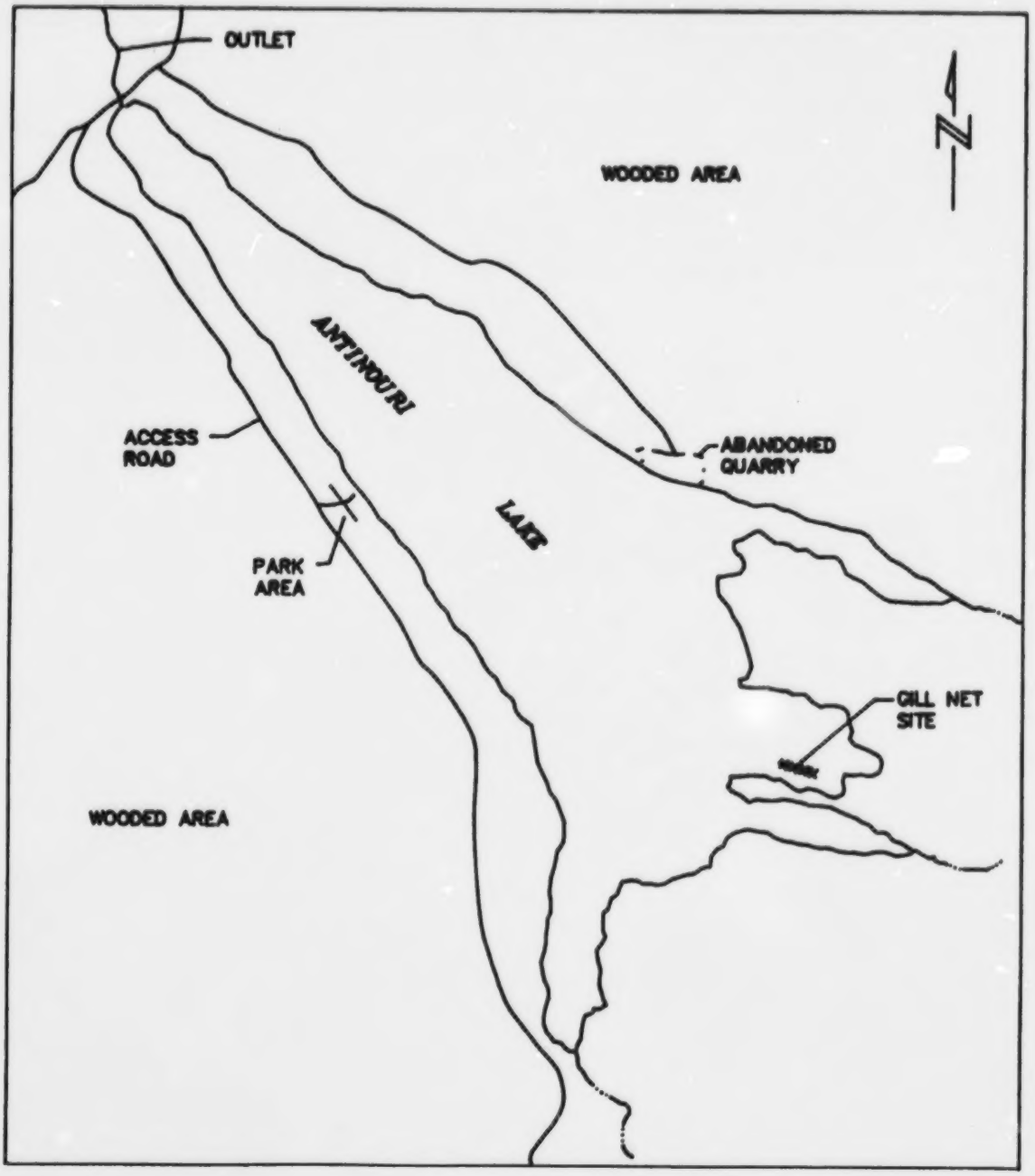


TABLE 3.8

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 5, ANTINOURI LAKE
August 15, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1		23.0	139.22	M	1+	O	(P)
2		23.5	152.06	M	1+	O,Ch	(P)

Stomach Contents: (P)-Partial
Ch-Chironomidae, O-Odonata

FIG. 3.6 FISH SAMPLING STATION, SITE 6, ROCKY BROOK, AUGUST 14,1984

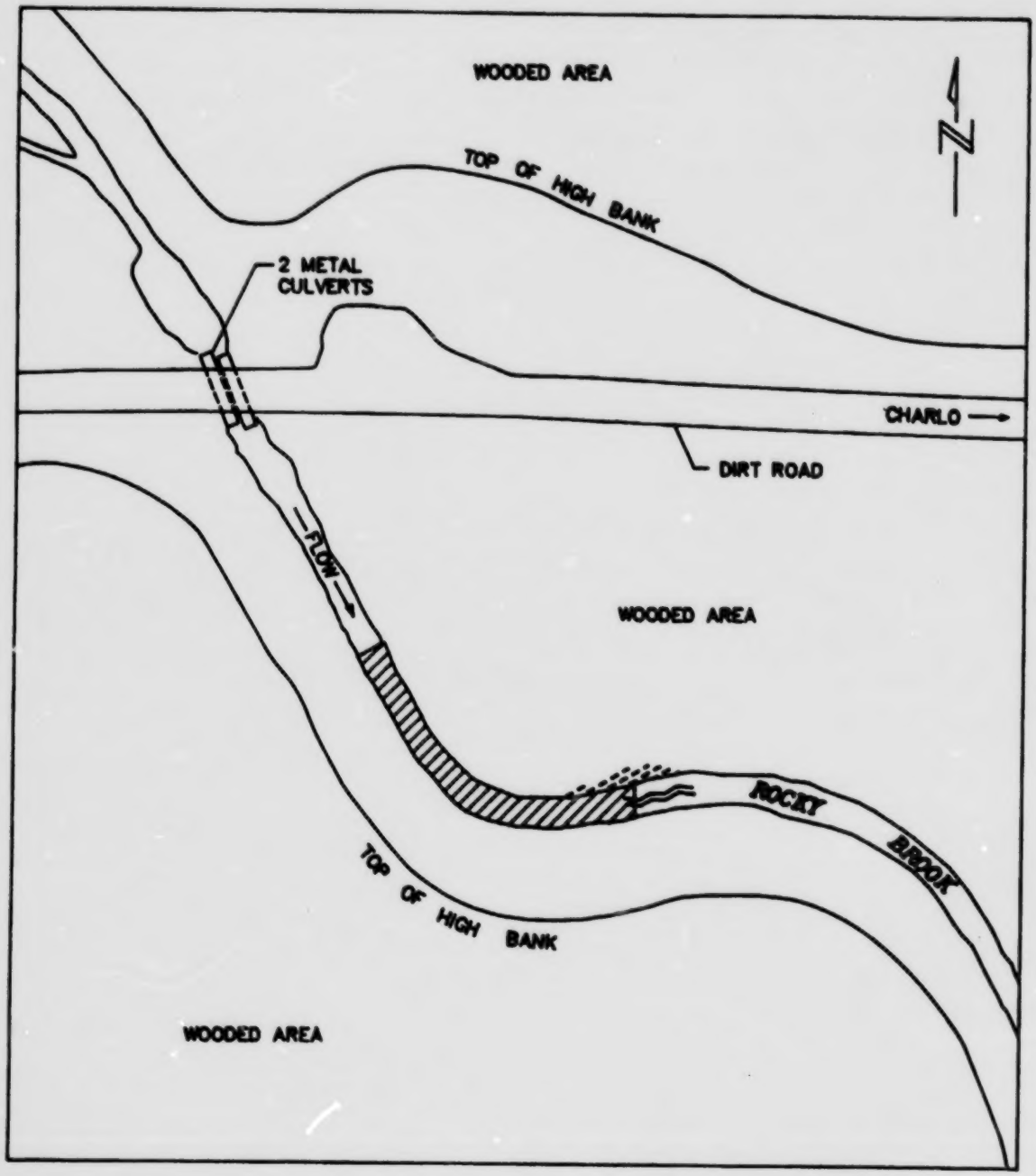


TABLE 3.9

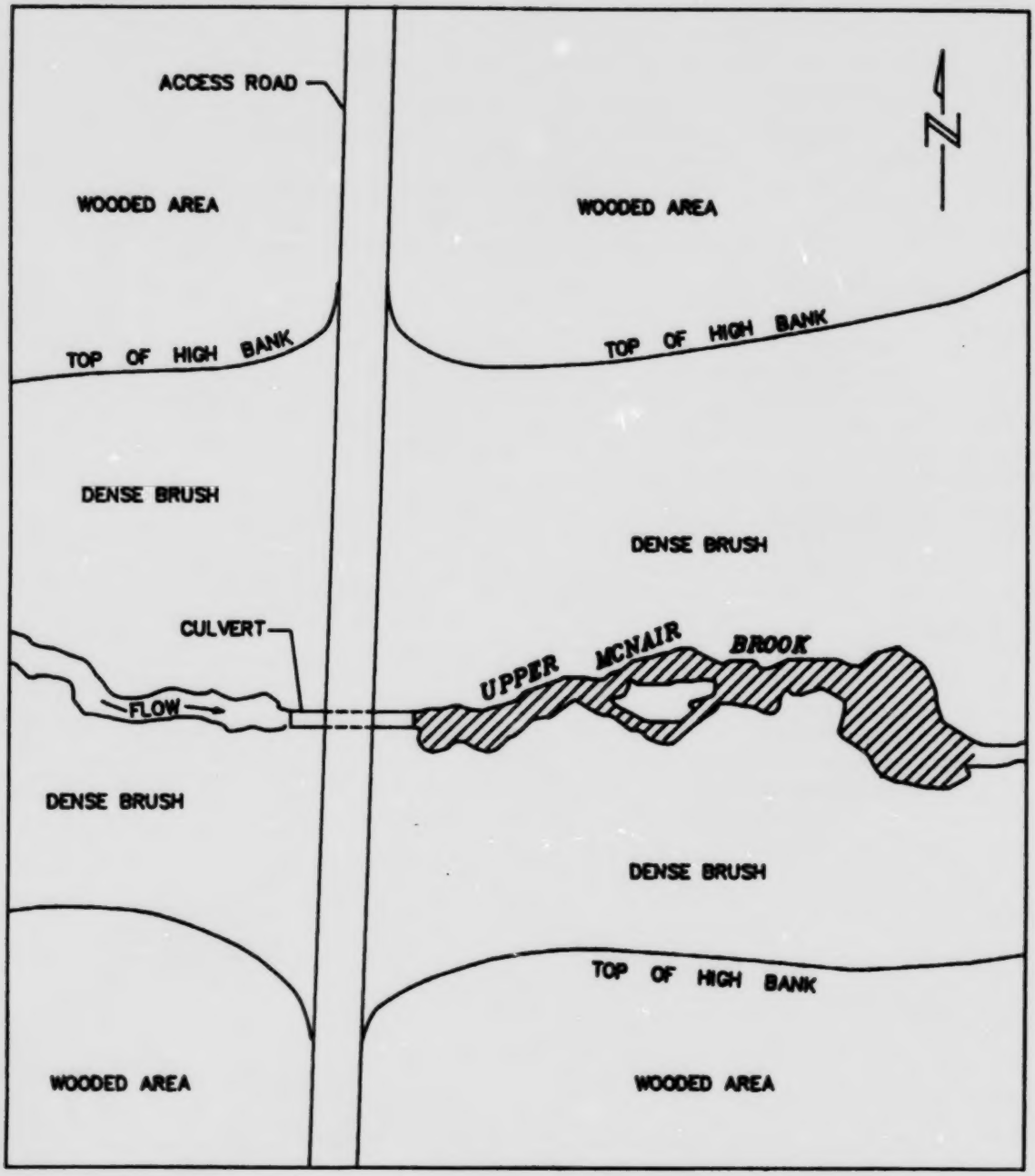
ELECTROSEINING DATA

SITE 6, ROCKY BROOK
August 14, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (10.1)	Sweep 2 ( )	Sweep 3 ( )	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout					
Cyprinidae					
American Eel					
Threespine Stickleback					
Slimy Sculpin					
Total Fish	0				0

No Fish Present
Barrier nets used but electrofishing terminated after 1 sweep due to absence of fish
Salamanders captured

FIG. 3.7 FISH SAMPLING STATION, SITE 7, UPPER MCNAIR BROOK, AUGUST 14,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 5 m (APPROX.)
TOPOGRAPHIC MAP 21-O/16
MILITARY GRID 957 926

TABLE 3.10

ELECTROSEINING DATA

SITE 7, UPPER MCNAIR BROOK
August 14, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 ( )	Sweep 2 ( )	Sweep 3 ( )	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout					
Cyprinidae					
American Eel					
Threespine Stickleback					
Slimy Sculpin					
Total Fish	0				0

Spot Check Only
1 Salamander Captured.
No Fish Present

FIG. 3.8 FISH SAMPLING LOCATION, SITE 8, LOWER SOUTH BRANCH JACQUET RIVER, AUGUST 18,1984

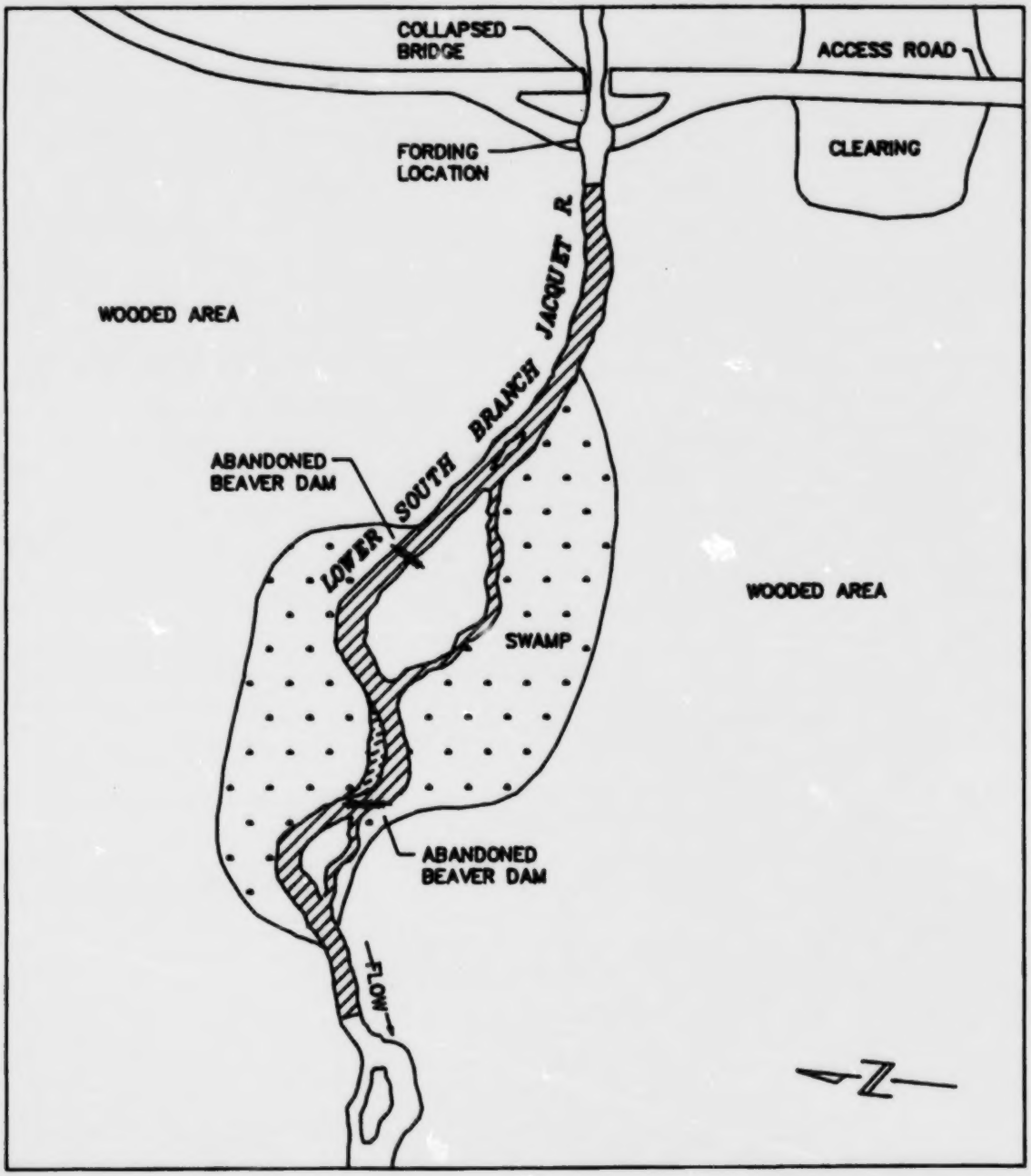


TABLE 3.11

ELECTROSEINING DATA

SITE 8, LOWER SOUTH BRANCH JACQUET RIVER
August 18, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (43)	Sweep 2 (31)	Sweep 3 (32)	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	44	10	2		56
Cyprinidae	32	21	8		61
American Eel	0	2	0		2
Threespine Stickleback					
Slimy Sculpin					
Total Fish	76	33	10		119

TABLE 3.12

ESTIMATED FISH DENSITIES

SITE 8, LOWER SOUTH BRANCH JACQUET RIVER
August 18, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry				
small parr				
large parr				
total parr				
Brook Trout	56	56.6 (variance-1.73)	25.6	
Cyprinidae	61			27.6
American Eel	2			0.9
Threespine Stickleback				
Slimy Sculpin				
TOTAL FISH*	119	126.25 (variance-21.28)	57.13	

*Sampling Area - 221m²
94.3% of Estimated Total Population Captured after 3 sweeps

TABLE 3.13

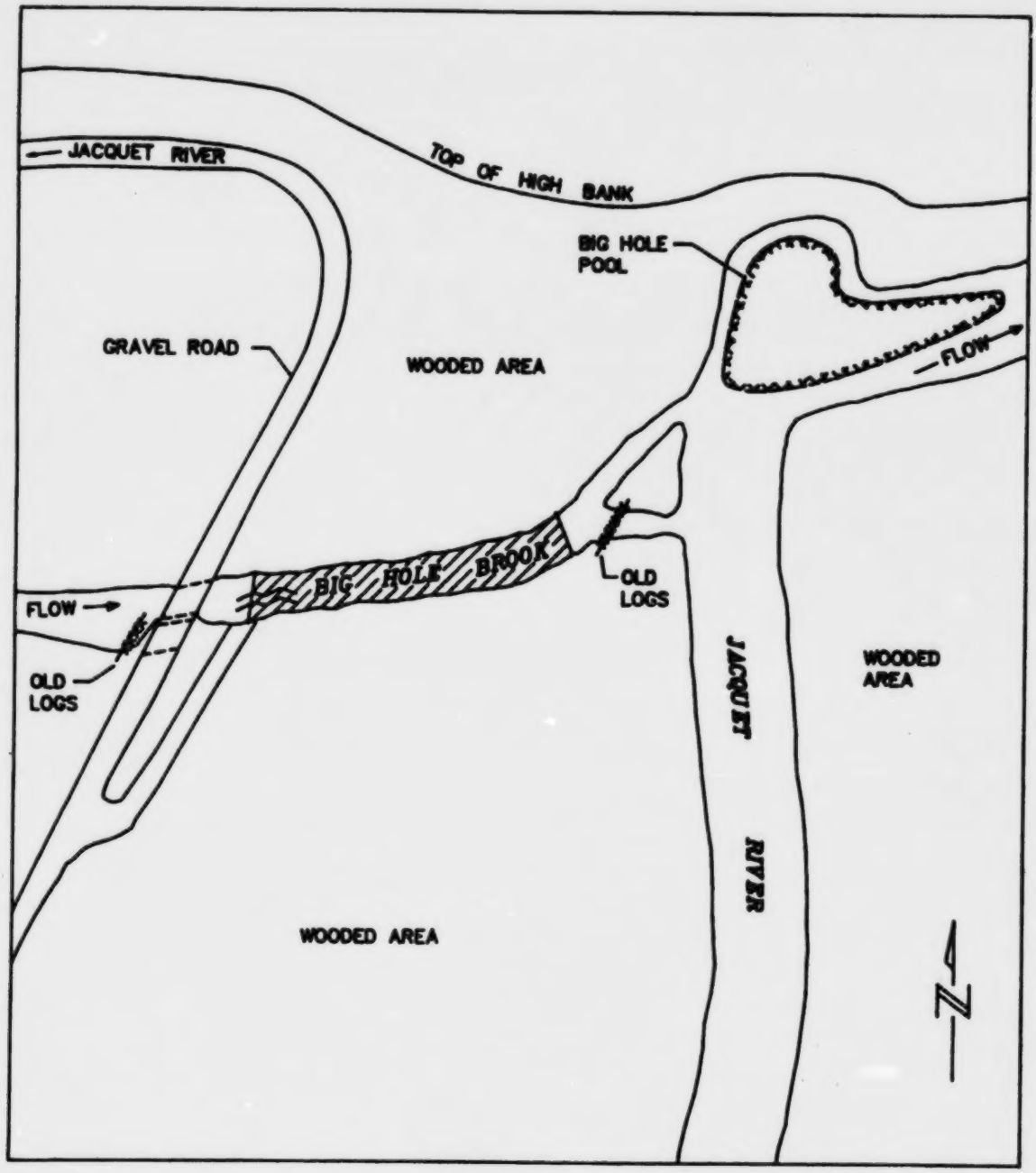
LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 8, LOWER SOUTH BRANCH
August 18, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	13.1	12.6	23.70	M	1+	T,S	(P)
2	10.0	9.6	11.21	F	1+	E,S,T	(F)
3	6.3	6.0	2.91	M	1+	E,Ch,S	(F)
4	10.7	10.2	12.65	F	1+	E,T	(F)
5	5.4	5.2	1.94	M		S,E,D,T	(F)
6	20.0	19.3	99.79	M		T	(P)

Stomach Contents: (F)-Full, (P)-Partial
Ch-Chironomidae, D-Diptera, E-Ephemeroptera,
S-Simuliidae, T-Trichoptera

FIG. 3.9 FISH SAMPLING STATION, SITE 9, BIG HOLE BROOK, AUGUST 17,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 10 20 m (APPROX.)
TOPOGRAPHIC MAP 21-I/16
MILITARY GRID 187 008

TABLE 3.14

ELECTROSEINING DATA

SITE 9, BIG HOLE BROOK
August 16, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (16)	Sweep 2 (16)	Sweep 3 (15.5)	Sweep 4 (12.5)	Total
Atlantic Salmon					
fry	13	8	6	0	27
small parr	23	22	7	2	54
large parr	23	6	1	0	30
total parr	46	28	8	2	84
Brook Trout	13	2	1	1	17
Cyprinidae	5	4	6	0	15
American Eel					
Threespine Stickleback					
Slimy Sculpin	14	5	4	5	28
Total Fish	91	47	25	8	171

TABLE 3.15

ESTIMATED FISH DENSITIES

SITE 9, BIG HOLE BROOK
August 16, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry	27	28.90	9.00	
small parr	54	58.50 (variance-17.58)	18.10	
large parr	30	30.10	9.30	
total parr	84	86.70 (variance-6.81)	26.90	
Brook Trout	17	17.20	5.30	
Cyprinidae	15			4.70
American Eel				
Threespine Stickleback				
Slimy Sculpin	28			8.70
TOTAL FISH*	171	181.02 (variance-26.09)	56.22	

Sampling Area - 322m²
94.5% of Estimated Total Population captured after 4 sweeps

TABLE 3.16

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 9, BIG HOLE BROOK
August 17, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	6.1	5.7	2.48	F	0+	E,Ch,T	(F)
2	5.5	5.2	1.96	UD	0+	Ch,E	(F)
3	5.8	5.4	2.21	F	0+	E	(P)
4	6.0	5.7	2.73	F	0+	Ch,E	(P)
5	10.5	9.7	11.90	F	1+	P,T,Ch	(P)
6	13.0	12.1	22.53	F	2+	T	(F)
7	13.7	12.8	28.30	M	2+	T,Ch,C,El	(F)
8	11.0	10.2	16.66	M	2+	T,E,Ch,C	(F)
9	11.3	10.4	15.73	M	2+	T	(P)
10	9.1	8.5	8.17	F	1+	T,E,S,Ch	(F)
11	9.1	8.4	8.34	M	1+	T,E,S,Ch	(P)
12	10.5	9.6	12.00	F	1+	Ch,S,E,T,	(F)
13	12.3	11.2	21.97	M	2+	T,Ch	(P)
14	9.8	9.2	11.53	M	1+	T,E,P,Ch	(P)

Stomach Contents: (F)-Full, (P)-Partial
C-Coleoptera, Ch-Chironomidae, El-Elmidae,
E-Ephemeroptera, P-Plecoptera, T-Trichoptera,
S-Simuliidae

TABLE 3.17

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 9, BIG HOLE BROOK
August 17, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	5.6	5.3	2.04	F		E,Ch,C	(F)
2	5.4	5.2	1.93	F		D,E	(F)
3	11.3	10.9	14.68	F	1+	Tp,El,S,E	(F)
4	6.5	6.2	3.23	M	0+	T,E,C,	(P)

Stomach Contents: (F)-Full, (P)-Partial
C-Coleoptera, Ch-Chiroromidae, D-Diptera,
E-Ephemeroptera, El-Elmidae, Tp-Tipulidae
S-Simuliidae, T-Trichoptera

FIG. 3.10 FISH SAMPLING STATION, SITE 10, TONGUE LAKE BROOK, AUGUST 19,1984

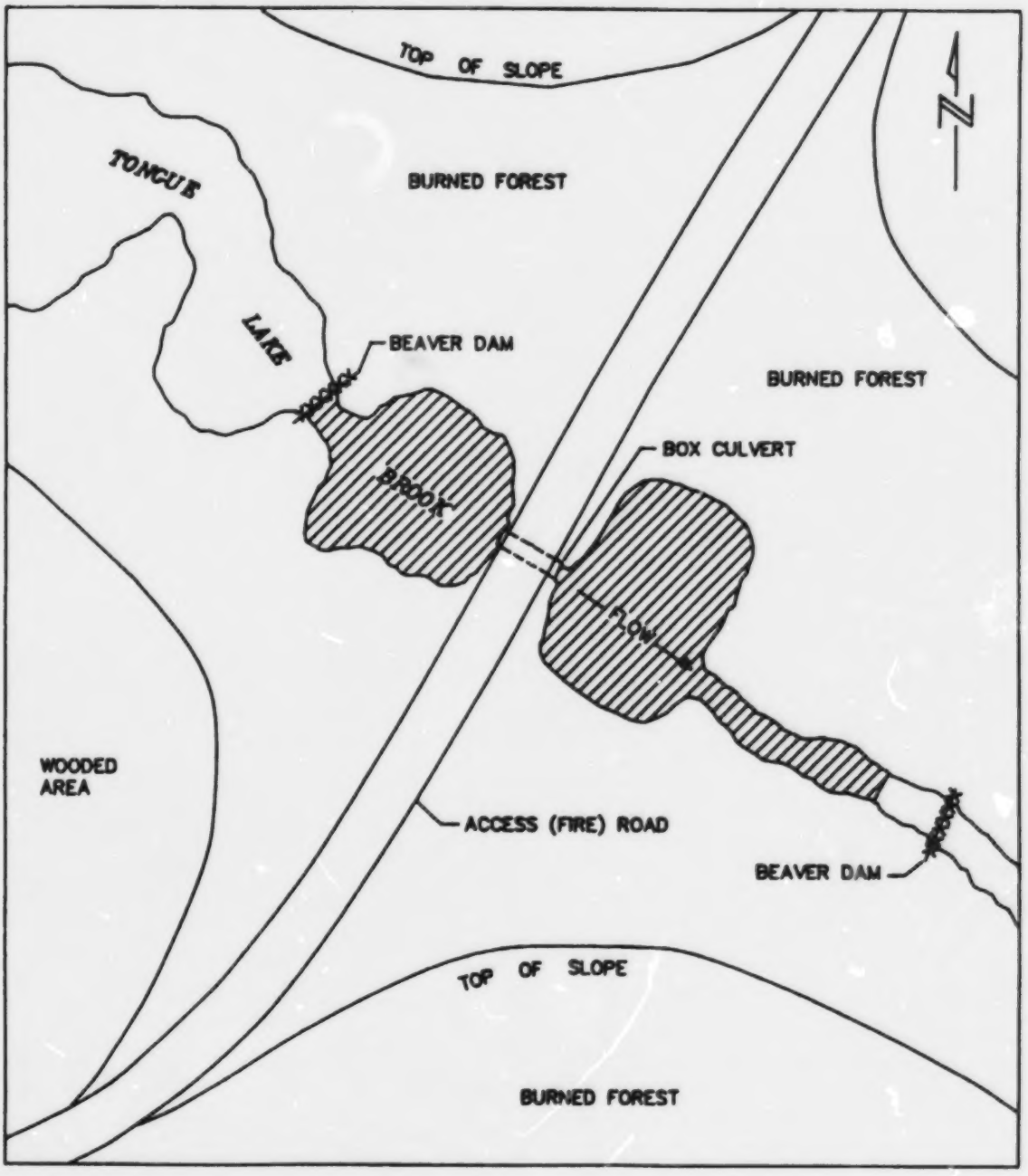


TABLE 3.18

ELECTROSEINING DATA

SITE 10, TONGUE LAKE BROOK
August 19, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 ( )	Sweep 2 ( )	Sweep 3 ( )	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	53				53
Cyprinidae	4				4
American Eel	1				1
Threespine Stickleback					
Slimy Sculpin					
Total Fish	58				58

Spot Check Only Area 255m²

TABLE 3.19

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 10, TONGUE LAKE BROOK
August 19, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	7.4	7.1	4.61	F	0+	E,S,Ch	(F)
2	4.7	4.5	1.23	F		E,S,Ch	(P)
3	14.6	14.1	38.22	M	1+	T,S,Ch,GM	(F)
4	5.6	5.4	1.99	F		E,T,Ch,S	(P)
5	5.5	5.3	2.03	M		S,E,Gm,p,Ch	(F)
6	8.6	8.2	7.68	F	0+	S,T,Ch	(F)
7	7.0	6.7	4.15	M	0+	E	(P)
8	6.1	5.9	2.38	F		Gm,S,E	(F)
9	7.0	6.8	3.84	M	0+	S	(F)
10	5.8	5.6	2.45	F		S,Ch	(F)
11	6.2	5.9	3.00	F		E,S,Ch	(P)
12	7.6	7.3	5.55	M	0+	E,T,S	(F)
13	6.3	6.1	3.09	M		E,S,A	(P)
14	6.6	6.3	3.50	M		Ch,S,E	(P)
15	16.7	16.2	59.06	M	1+	S,P	(P)
16	11.9	11.4	19.21	F	1+	E,T,R	(P)
17	13.0	12.5	28.18	F		O,P	(P)
18	14.2	13.7	35.84	M	1+	S,T	(P)

Stomach Contents: (F)-Full, (P)-Partial
Ch-Chironomidae, Gm-Gammarus, O-Odonata,
E-Ephemeroptera, P-Plecoptera, R-Rhagionidae,
S-Simuliidae, T-Trichoptera

FIG. 3.11 FISH SAMPLING STATION, SITE 11, HEAD LAKE, AUGUST 21,1984

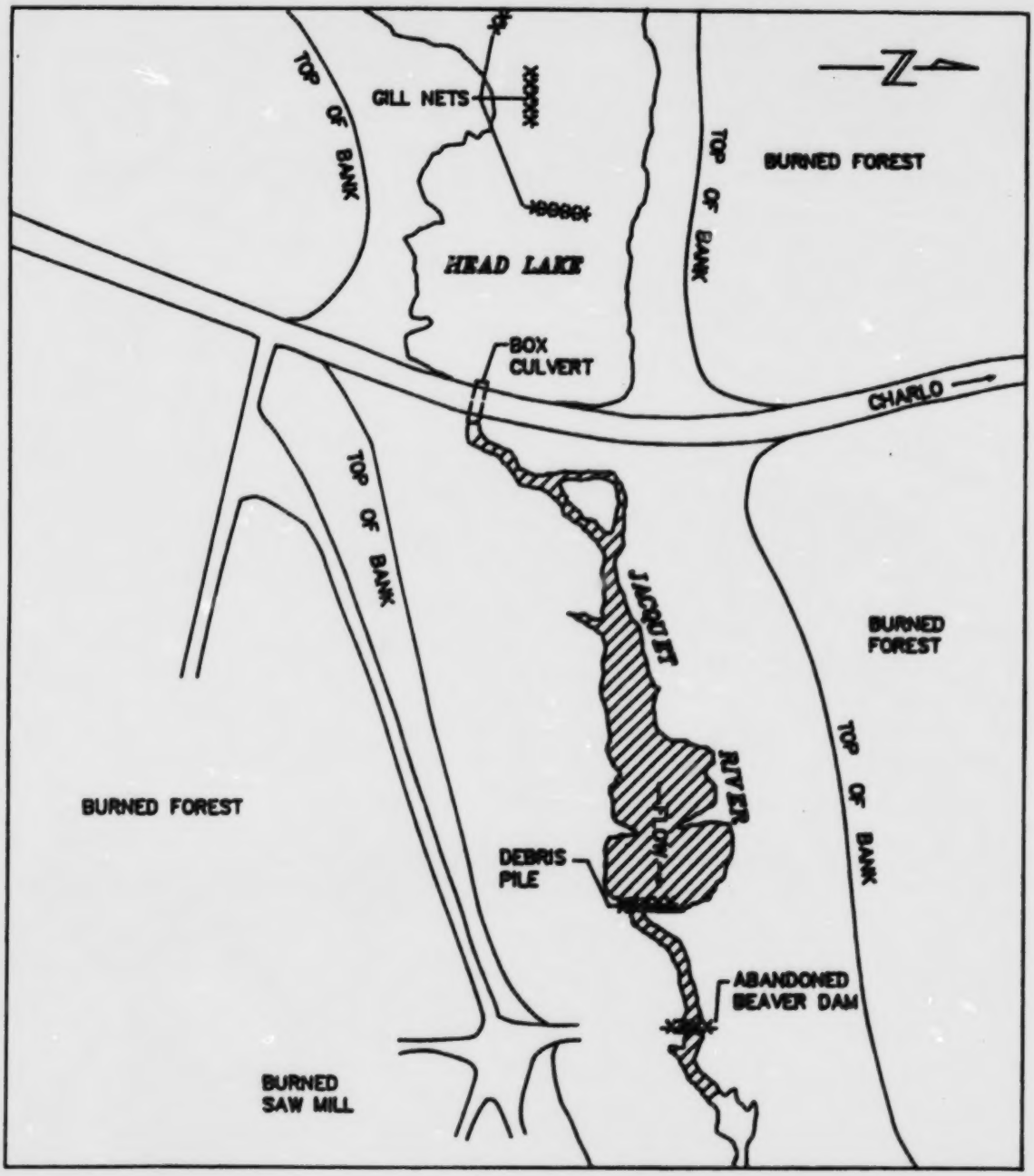


TABLE 3.20

ELECTROSEINING DATA

SITE 11, HEAD LAKE OUTFLOW
August 21, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 ( )	Sweep 2 ( )	Sweep 3 ( )	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	21				21
Cyprinidae	57				57
American Eel	1				1
Threespine Stickleback					
Slimy Sculpin	11				11
Total Fish	90				90

Spot Check Only

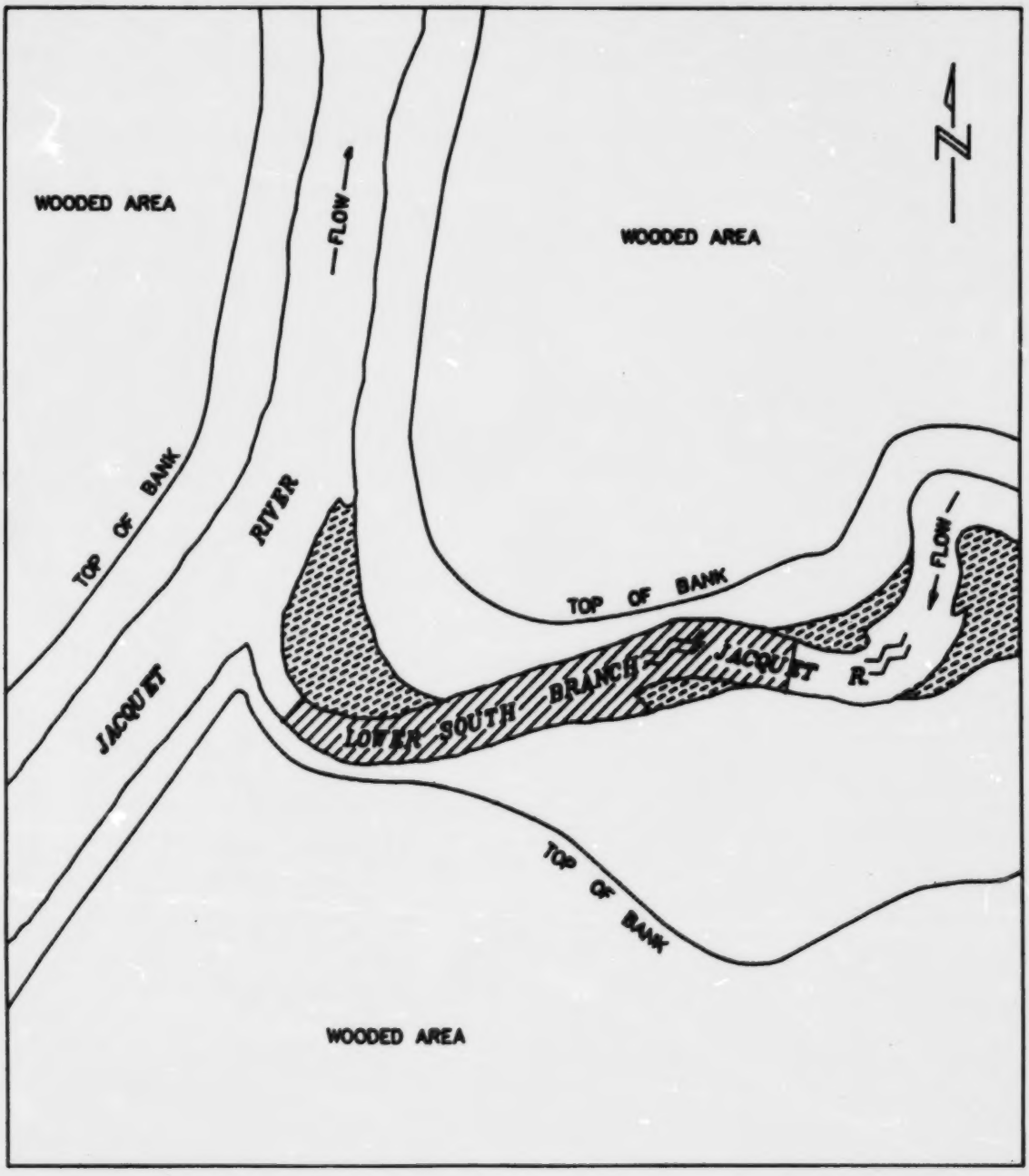
TABLE 3.21

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 11, HEAD LAKE
August 21, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents
1		19.5		F	1+	
2		15.4		F	1+	
3		15.5		M	1+	
4		21.5		M	1+	
5		18.0		M	1+	
6		22.0		M	1+	
7		15.3		F	1+	
8		17.9		F	1+	
9		12.1		M	1+	
10		15.1		M	1+	

FIG. 3.12 FISH SAMPLING STATION, SITE 12, LOWER SOUTH BRANCH JACQUET RIVER, AUGUST 22,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 10 20 m (APPROX.)
TOPOGRAPHIC MAP 21-O/16
MILITARY GRID 179 989

TABLE 3.22

ELECTROSEINING DATA

SITE 12, LOWER SOUTH BRANCH JACQUET RIVER
August 22, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (21)	Sweep 2 (19.3)	Sweep 3 (22)	Sweep 4 ( )	Total
Atlantic Salmon					
fry	12	6	1		19
small parr	7	4	4		15
large parr	2	1	0		3
total parr	9	5	4		18
Brook Trout	10	3	2		15
Cyprinidae	4	12	4		20
American Eel	1	2	1		4
Threespine Stickleback					
Slimy Sculpin	21	13	3		37
Total Fish	57	41	15		113

TABLE 3.23

ESTIMATED FISH DENSITIES

SITE 12, LOWER SOUTH BRANCH JACQUET RIVER
August 22, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry	19	20.0	4.3	
small parr	15	25.0	5.3	
large parr	3	3.1	0.7	
total parr	18	24.9	5.3	
Brook Trout	15	16.1	3.4	
Cyprinidae	20			4.3
American Eel	4			0.9
Threespine Stickleback				
Slimy Sculpin	37			7.9
TOTAL FISH*	113	136.3 (variance-158.79)	29.1	

*Sampling area - 468m²
82.9% of Estimated Total Population Captured after 3 sweeps

TABLE 3.24

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 12, LOWER SOUTH BRANCH JACQUET RIVER
August 22, 1984

Speciman Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	5.5	5.1	1.49	F	0+	E,T,Ch	(F)
2	12.6	11.5	23.95	M	2+	C,T,D,	(F)
3	8.7	8.0	6.95	F	1+	T,P	(F)
4	12.3	11.4	20.30	M	2+	T	(P)
5	9.1	8.4	7.67	F	1+	E,T,S,	(F)
6	12.2	11.3	19.40	F	2+	T,G,	(P)
7	8.6	8.0	7.36	M	1+	T	(P)
8	9.5	8.7	10.00	M	1+	T	(P)

Stomach Contents: (F)-Full, (P)-Partial
C-Coleoptera, Ch-Chironomidae, D-Diptera,
E-Ephemeroptera, G-Gastropoda,
S-Simuliidae

TABLE 3.25

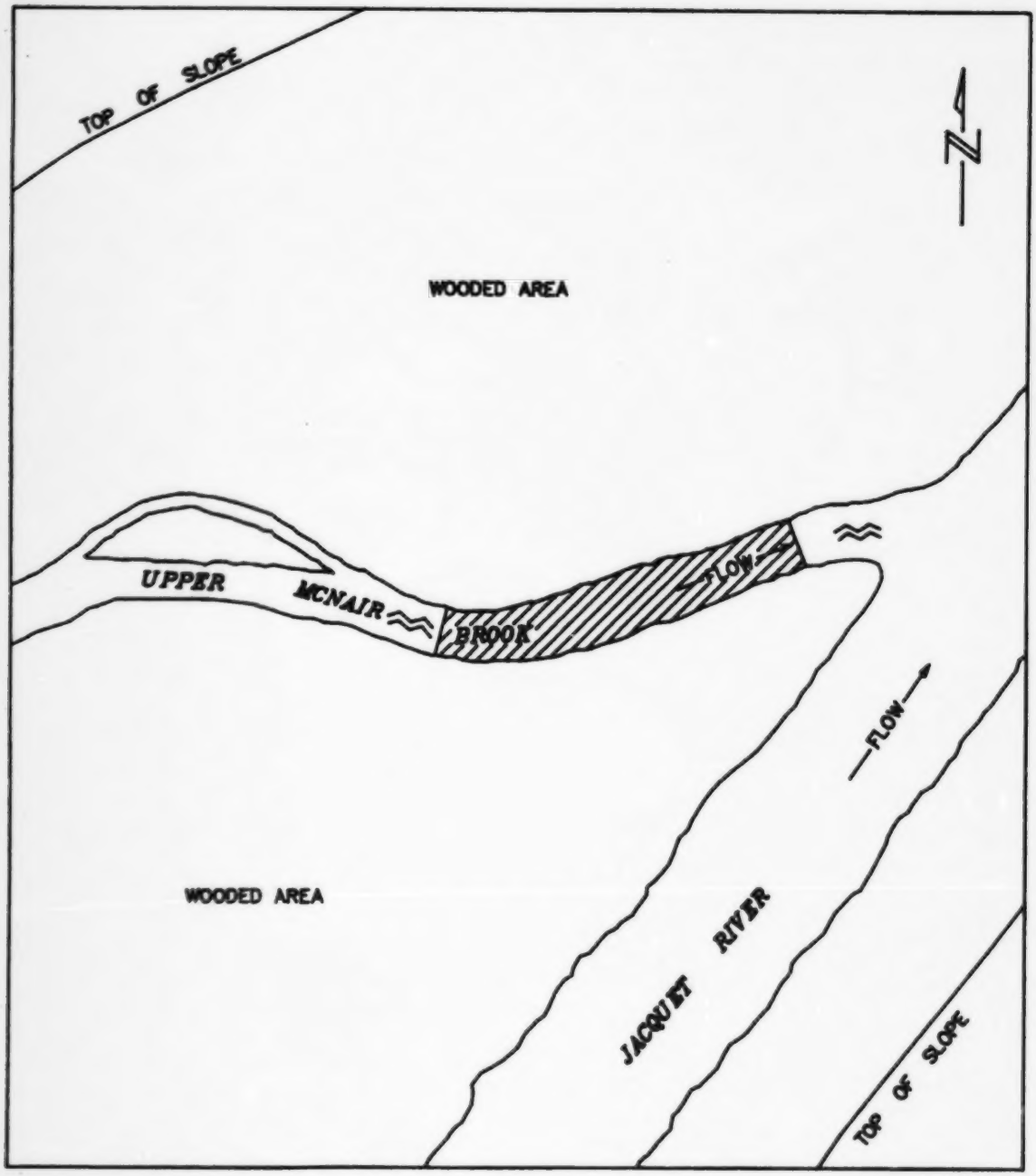
LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 12, LOWER SOUTH BRANCH JACQUET RIVER
August 22. 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	11.4	10.8	15.18	M	1+		(E)
2	10.1	9.7	12.09	F	1+	T,E	(F)
3	5.7	5.4	2.48	M	0+		(E)
4	18.7	18.2	78.06	F	1+	P,T	(P)

Stomach Contents: (E) Empty, (P) Partial, (F)Full,
E-Ephemeroptera, P-Plecoptera, T-Trichoptera

FIG. 3.13 FISH SAMPLING STATION, SITE 13, UPPER MCNAIR BROOK, AUGUST 23,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 5 10 15 m (APPROX.)

TOPOGRAPHIC MAP 21-O/9

MILITARY GRID 079 901

TABLE 3.26

ELECTROSEINING DATA

SITE 13, UPPER MCNAIR BROOK
August 23, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (12.2)	Sweep 2 (10.1)	Sweep 3 (9)	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr	4	0	0		4
Brook Trout	9	4	0		13
Cyprinidae					
American Eel					
Threespine Stickleback					
Slimy Sculpin	27	12	0		39
Total Fish	40	16	0		56

TABLE 3.27

ESTIMATED FISH DENSITIES

SITE 13, UPPER MCNAIR BROOK
August 23, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry				
small parr				
large parr				
total parr	4			1.9
Brook Trout	13	13.3	6.3	
Cyprinidae				
American Eel				
Threespine Stickleback				
Slimy Sculpin	39			18.5
TOTAL FISH*	56	56.9 (variance-2.85)	27.0	

*Sampling area - 211m²
98.4% of Estimated Total Population Captured after 3 sweeps

TABLE 3.28

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 13, UPPER MCNAIR BROOK
August 23, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Contents	
1	10.7	10.0	11.17	F	1+	T	(P)
2	10.2	9.4	9.79	F	1+	T,E	(F)
3	11.4	10.6	14.37	F	1+	T	(P)
4	10.5	9.8	12.94	M	1+	T	(F)

Stomach Contents: (P) Partial, (F) Full
E-Ephemeroptera, T-Trichoptera

TABLE 3.29

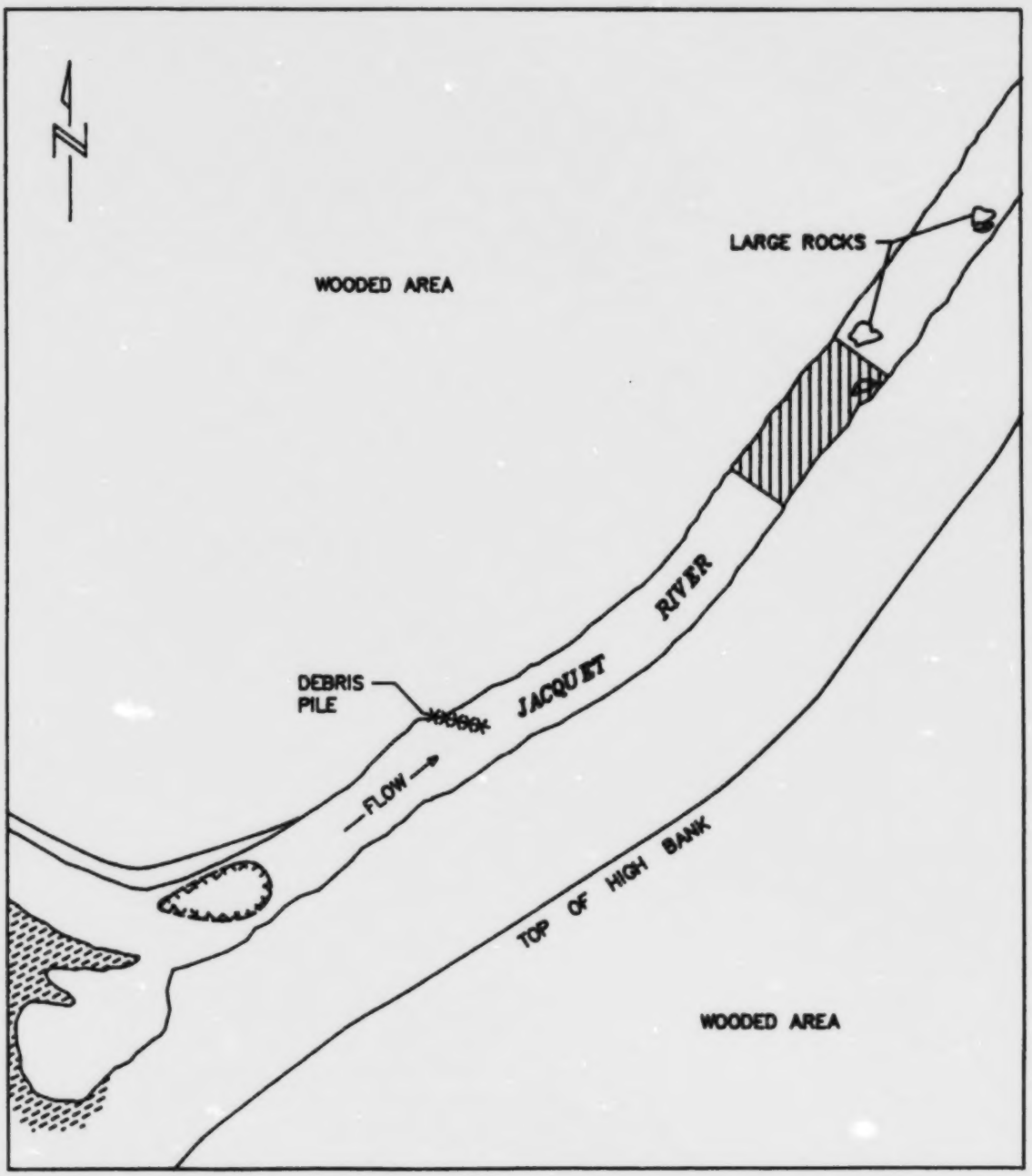
LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 13, UPPER MCNAIR BROOK
August 23, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	5.8	5.6	1.93	M		E,T	(F)
2	6.3	5.9	2.18	M		E,P,D,	(F)
3	6.5	6.2	2.67	F		T,Tp	(F)
4	5.6	5.4	1.99	F		T,E	(F)
5	5.7	5.5	2.03	F		P,E,D	(F)
6	6.8	6.5	3.31	M	0+	P,O,D	(F)
7	5.1	4.9	1.43	M		E	(F)
8	5.1	4.8	1.34	F		E,T	(F)
9	7.5	7.2	4.11	M	0+	T	(F)
10	9.5	9.1	8.95	M	1+	T,E	(F)
11	12.3	11.8	18.69	F	1+	T	(F)
12	12.5	12.1	19.52	M	1+	T	(F)

Stomach Contents: (F) Full
D-Diptera, E-Ephemeroptera, O-Odonata, P-Plecoptera,
T-Trichoptera, Tp-Tipulidae

FIG. 3.14 FISH SAMPLING STATION, SITE 14, JACQUET RIVER, AUGUST 23,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 10 20 m (APPROX.)
TOPOGRAPHIC MAP 21-O/9
MILITARY GRID 079 900

TABLE 3.30

ELECTROSEINING DATA

SITE 14, JACQUET RIVER
August 23, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (12.3)	Sweep 2 (11.6)	Sweep 3 (12.1)	Sweep 4 ( )	Total
Atlantic Salmon					
fry	1	0	0		1
small parr					
large parr					
total parr	9	0	1		10
Brook Trout	9	4	2		15
Cyprinidae					
American Eel	2	1	0		3
Threespine Stickleback					
Slimy Sculpin	9	3	14		26
Total Fish	30	8	17		55

TABLE 3.31

ESTIMATED FISH DENSITIES

SITE 14, JACQUET RIVER
August 23, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry	1			0.4
small parr				
large parr				
total parr	10	10.1	3.6	
Brook Trout	15	16.7	6.0	
Cyprinidae				
American Eel	3			
Threespine Stickleback				
Slimy Sculpin	26			9.3
TOTAL FISH*	55			19.8

*Sampling area - 278m²

TABLE 3.32

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 14, JACQUET RIVER
August 23,1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	10.3	9.4	10.03	F	1+	T	(F)
2	8.9	8.3	7.89	M	1+	T	(P)
3	10.0	9.3	9.87	F	1+	T,Tp,G	(F)
4	11.2	10.4	12.92	F	1+	T	(F)
5	11.2	10.4	14.46	F	1+	T	(P)
6	9.6	8.9	8.67	F	1+	T	(P)
7	10.2	9.5	13.10	M	1+	T	(P)
8	12.8	11.9	22.53	M	2+	T,G,H	(F)

Stomach Contents: (F) Full, (P) Partial
T-Trichoptera, Tp-Tipulidae, G-Gastropoda,
H-Heleidae

TABLE 3.33

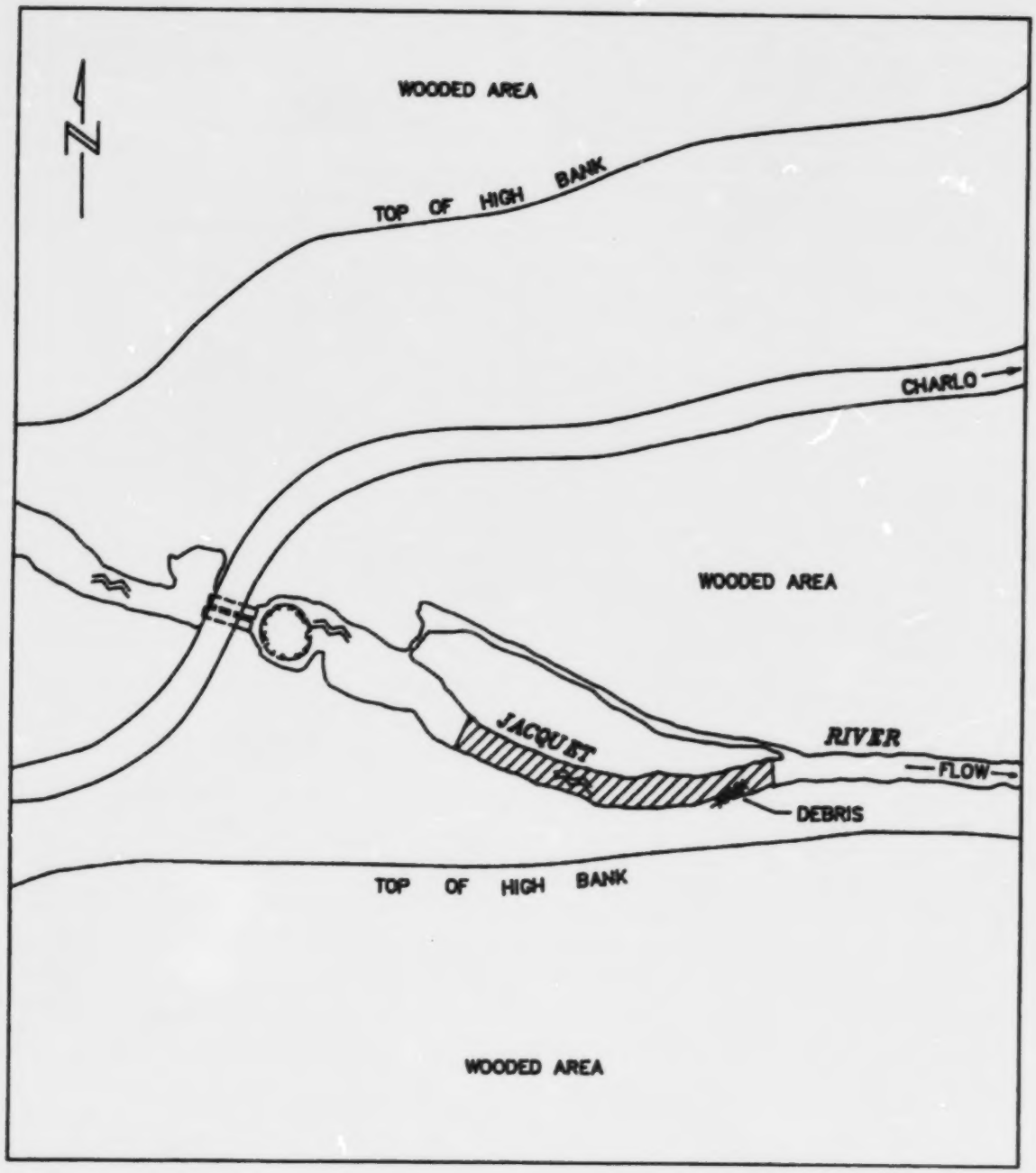
LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 14, JACQUET RIVER
August 23,1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	5.0	4.8	1.44	F		E	(F)
2	6.3	6.0	2.63	F		E,T,Ch	(F)
3	6.3	6.0	2.48	M		T	(P)
4	5.1	4.9	1.43	F		G,T	(F)
5	11.3	10.9	15.29	M	1+	E,T,C	(F)
6	12.5	12.0	21.81	M	1+	C,T	(F)
7	11.6	11.2	15.79	F	1+	T,Ch	(F)

Stomach Contents: (F) Full, (P) Partial
C-Coleoptera, Ch-Chironomidae, E-Ephemeroptera,
G-Gastropoda, T-Trichoptera

FIG. 3.15 FISH SAMPLING STATION, SITE 15, JACQUET RIVER, AUGUST 25,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 10 20 m (APPROX.)
TOPOGRAPHIC MAP 21-O/9
MILITARY GRID 976 827

TABLE 3.34

ELECTROSEINING DATA

SITE 15, JACQUET RIVER
August 25, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (14.8)	Sweep 2 (18.2)	Sweep 3 (15.7)	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	26	16	8		50
Cyprinidae					
American Eel					
Threespine Stickleback					
Slimy Sculpin	26	13	10		49
Total Fish	52	29	18		99

TABLE 3.35

ESTIMATED FISH DENSITIES

SITE 15, JACQUET RIVER
August 25, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry				
small parr				
large parr				
total parr				
Brook Trout	50	61.1 (variance-98.3)	21.2	
Cyprinidae				
American Eel				
Threespine Stickleback				
Slimy Sculpin	49			17.0
TOTAL FISH*	99	123.4 (variance-204.8)	42.9	

*Sampling Area - 288m²
80.2% of Estimated Total Population Captured after 3 sweeps

TABLE 3.36

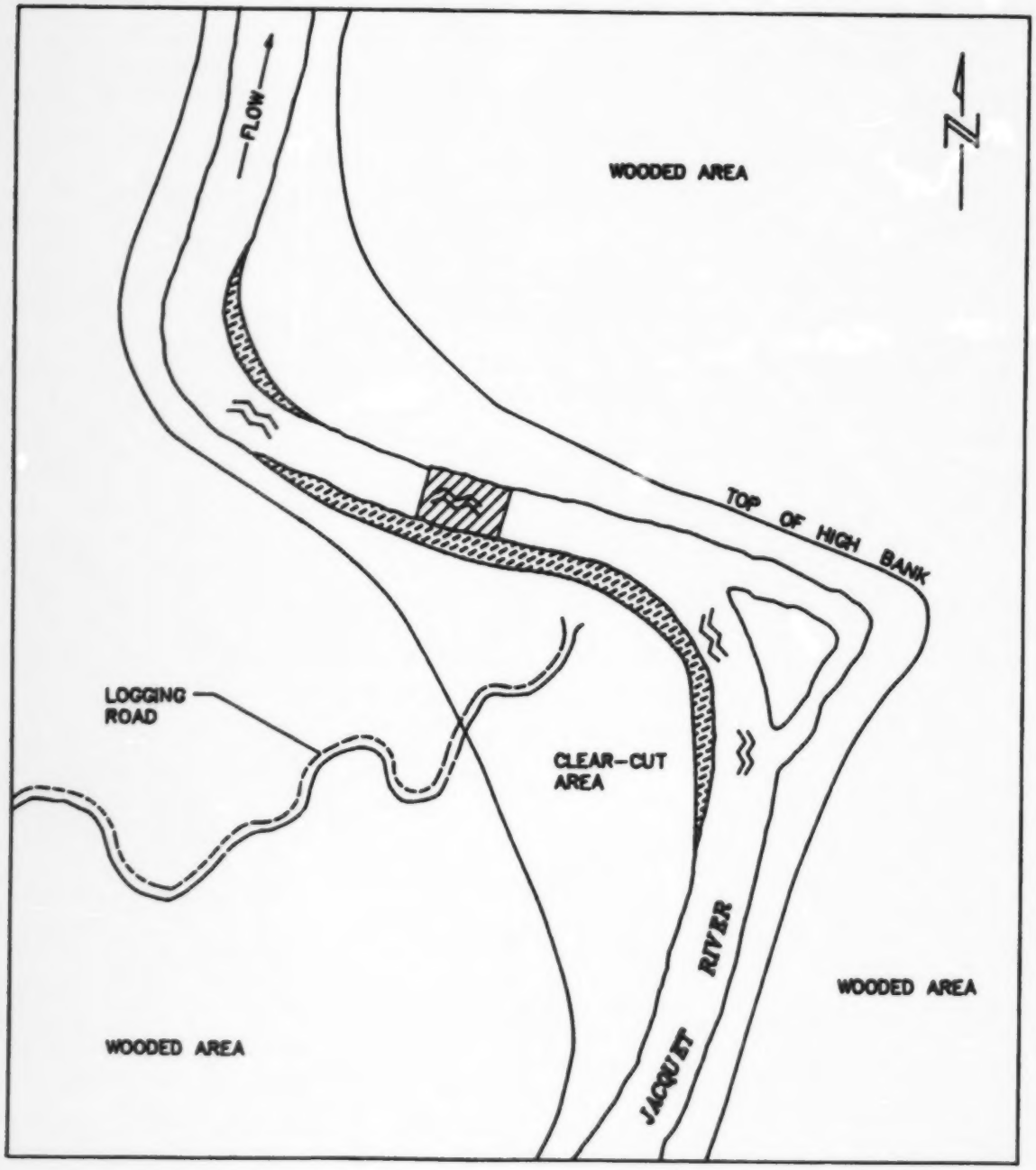
LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 15, JACQUET RIVER
August 25,1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	15.1	14.6	45.73	F	2+	C,T,E,	(P)
2	13.6	13.0	26.80	M	1+	P,T,Ch,E,G	(F)
3	8.4	8.0	6.47	M	0+	E,T,	(P)
4	12.3	11.8	19.70	F	1+	G,T,C,Ch	(F)
5	7.9	7.6	5.73	F	0+	Ch,E,T,R,	(F)
6	8.3	8.0	6.11	M	0+	T	(P)
7	7.7	7.3	4.75	M	0+	S,E	(F)
8	7.9	7.5	4.82	M	0+	T	(P)
9	5.7	5.5	1.95	F		T	(P)

Stomach Contents: (F) Full, (P) Partial
C-Coleoptera, Ch-Chironomidae, E-Ephemeroptera,
G-Gastropoda, P-Plecoptera, R-Rhagionidae,
S-Simuliidae, T-Trichoptera

FIG. 3.16 FISH SAMPLING STATION, SITE 16, JACQUET RIVER, AUGUST 26,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 20 40 m (APPROX.)
TOPOGRAPHIC MAP 21-O/16
MILITARY GRID 226 057

TABLE 3.37

ELECTROSEINING DATA

SITE 16, JACQUET RIVER
August 26, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (30)	Sweep 2 (31)	Sweep 3 (30)	Sweep 4 (17)	Total
Atlantic Salmon					
fry	2	3	0	0	5
small parr					
large parr					
total parr	58	19	10	3	90
Brook Trout	0	1	0	0	1
Cyprinidae	2	1	2	0	5
American Eel	0	3	1	1	5
Threespine Stickleback					
Slimy Sculpin					
Total Fish	62	27	13	4	106

TABLE 3.38

ESTIMATED FISH DENSITIES

SITE 16, JACQUET RIVER
August 26, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry	5	5.2	1.0	
small parr				
large parr				
total parr	90	92.0 (variance-4.7)	18.4	
Brook Trout	1			0.2
Cyprinidae	5			1.0
American Eel	5			1.0
Threespine Stickleback				
Slimy Sculpin				
TOTAL FISH*	106	109.8 (variance-9.0)	22.0	

*Sampling area - 500m²
96.6% of Estimated Population captured after 4 sweeps

TABLE 3.39

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 16, JACQUET RIVER
August 26, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	12.2	11.3	18.10	F	2+	T	(F)
2	11.1	10.3	12.06	F	2+	T	(F)
3	9.2	8.5	7.33	F	1+	T,E,Ch	(F)
4	8.7	8.1	7.88	M	1+	E	(P)
5	8.7	8.0	6.46	F	1+	E,P,T	(F)
6	8.9	8.2	7.08	F	1+	T,E	(F)
7	10.1	9.3	10.44	M	1+	E	(F)
8	10.0	9.4	10.19	F	1+	T,P	(P)
9	8.6	7.9	5.94	F	1+	T,E	(P)
10	8.6	8.0	6.03	F	1+	T,E	(P)
11	8.4	7.8	6.62	M	1+	T,E	(P)
12	8.7	8.0	7.34	M	1+	E,Ch	(F)
13	9.2	8.6	7.66	F	1+	T,E	(P)
14	9.6	8.8	9.32	M	1+	T,E,Ch	(F)
15	10.7	9.8	11.51	F	1+	E,T,P	(F)
16	9.4	8.8	8.59	M	1+	T,E	(P)
17	10.2	9.5	11.04	F	1+	E,T,Ch	(P)
18	9.6	8.8	7.97	M	1+	E,T	(F)
19	8.2	7.7	6.62	M	1+	T	(P)
20	9.2	8.5	8.38	F	1+	P,Tp,E	(F)
21	9.4	8.2	8.23	F	1+	E,Ch,T	(F)
22	12.5	11.4	18.51	F	2+	T,E	(F)
23	9.5	8.9	8.45	F	1+	E	(P)
24	11.7	10.8	19.24	M	2+		(E)
25	6.1	5.7	2.26	M	0+	E,T	(F)
26	5.8	5.4	2.19	F	0+	E	(P)
27	6.1	5.6	2.47	F	0+	E,T	(F)
28	6.5	6.0	3.15	M	0+	T,E	(F)

Stomach Content: (F) Full, (P) Partial,
(E) Empty.
T-Trichoptera, E-Ephemeroptera, Ch-Chironomidae
P-Plecoptera, Tp-Tipulidae

TABLE 3.40

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 16, JACQUET RIVER
August 26, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content
1	13.3	12.8	30.16	F	1+	T,E,D, (F)

Stomach Contents: (F) Full
D-Diptera, E-Ephemeroptera, T-Trichoptera

FIG. 3.17 FISH SAMPLING STATION, SITE 17, JACQUET RIVER, AUGUST 27,1984

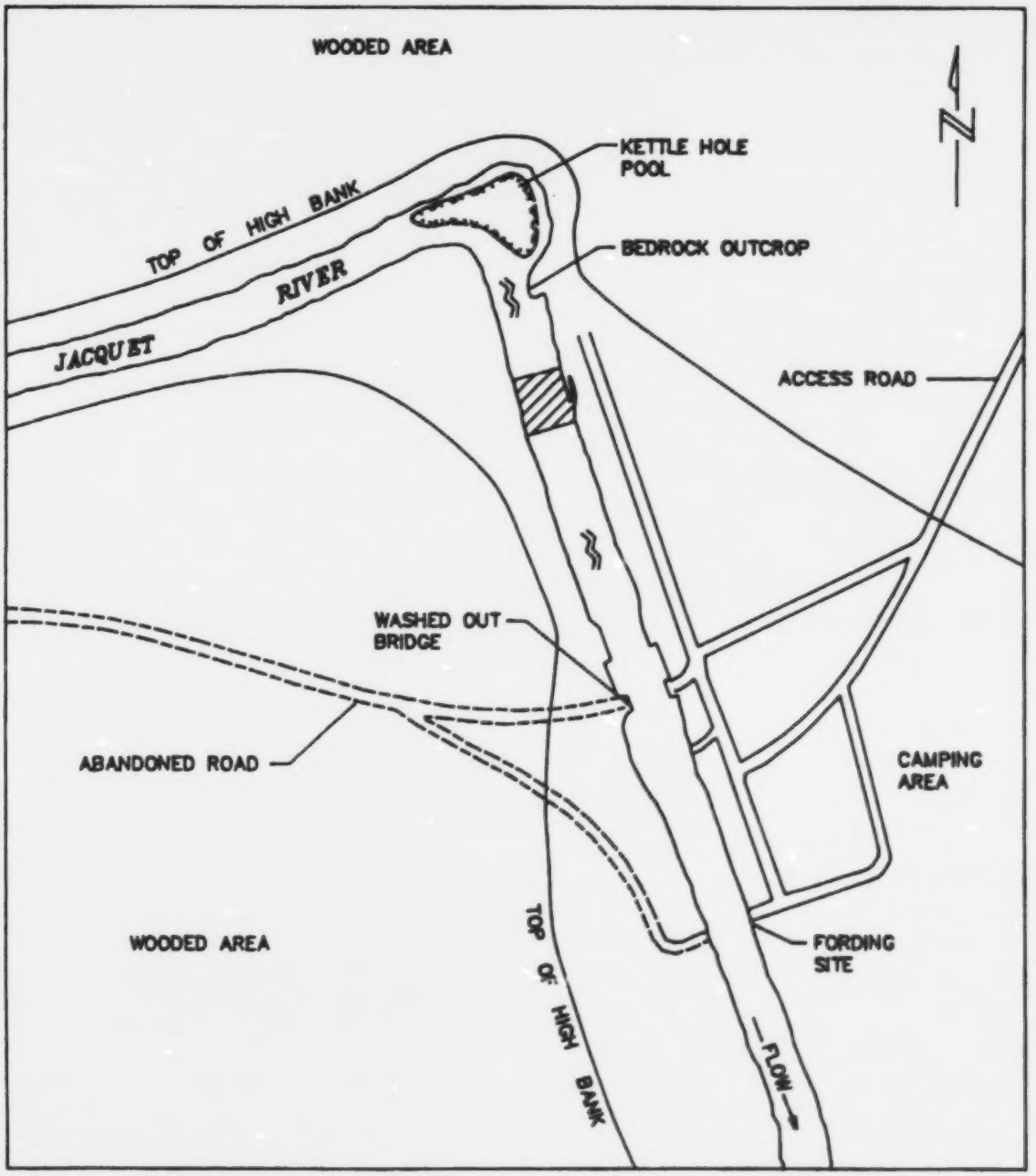


TABLE 3.41

ELECTROSEINING DATA

SITE 17, JACQUET RIVER
August 27, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (32)	Sweep 2 (35)	Sweep 3 (35)	Sweep 4 (25)	Total
Atlantic Salmon					
fry	8	4	2	1	15
small parr	13	6	3	3	25
large parr	4	1	3	0	8
total parr	17	7	6	3	33
Brook Trout	2	1	0	0	3
Cyprinidae					
American Eel	3	0	3	0	6
Threespine Stickleback					
Slimy Sculpin	18	22	5	0	45
Total Fish	48	34	16	4	102

TABLE 3.42

ESTIMATED FISH DENSITIES

SITE 17, JACQUET RIVER
August 27, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry	15	16.0	3.0	
small parr	25	27.8	5.3	
large parr	8	9.0	1.7	
total parr	33	36.8	7.0	
Brook Trout	3	3.0	0.6	
Cyprinidae				
American Eel	6			1.1
Threespine Stickleback				
Slimy Sculpin	45			8.5
TOTAL FISH*	102	109.9 (variance-25.50)	20.9	

*Sampling Area - 527m²
92.8% of Estimated Total Population captured after 4 sweeps

TABLE 3.43

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 17, JACQUET RIVER
August 27, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	5.7	5.4	2.06	M	0+	T,E,Ch	(F)
2	6.2	5.8	2.77	M	0+	T,E,D,O	(F)
3	6.6	6.1	2.90	F	0+	E,T,C	(F)
4	6.0	5.5	2.54	M	0+	E,T	(F)
5	12.6	11.9	23.34	M	2+	T,E,N	(F)
6	10.6	9.8	10.78	F	1+	T,E	(P)
7	14.1	13.2	30.42	F	2+	T,E	(F)
8	13.7	12.8	27.87	M	2+	T,El	(F)
9	14.7	13.8	38.43	M	3+	T	(F)
10	12.9	11.8	21.40	M	2+	T,N	(F)
11	10.5	9.7	10.83	F	1+	T	(P)
12	10.4	9.6	10.95	M	1+	T,Ch	(F)
13	9.7	8.9	10.12	M	1+	T,E	(F)

Stomach Contents: (F) Full, (P) Partial
C-Coleoptera, Ch-Chironomidae, D-Diptera,
E-Ephemeroptera, El-Elmidae, N-Nematoda,
O-Odonata, T-Trichoptera

TABLE 3.44

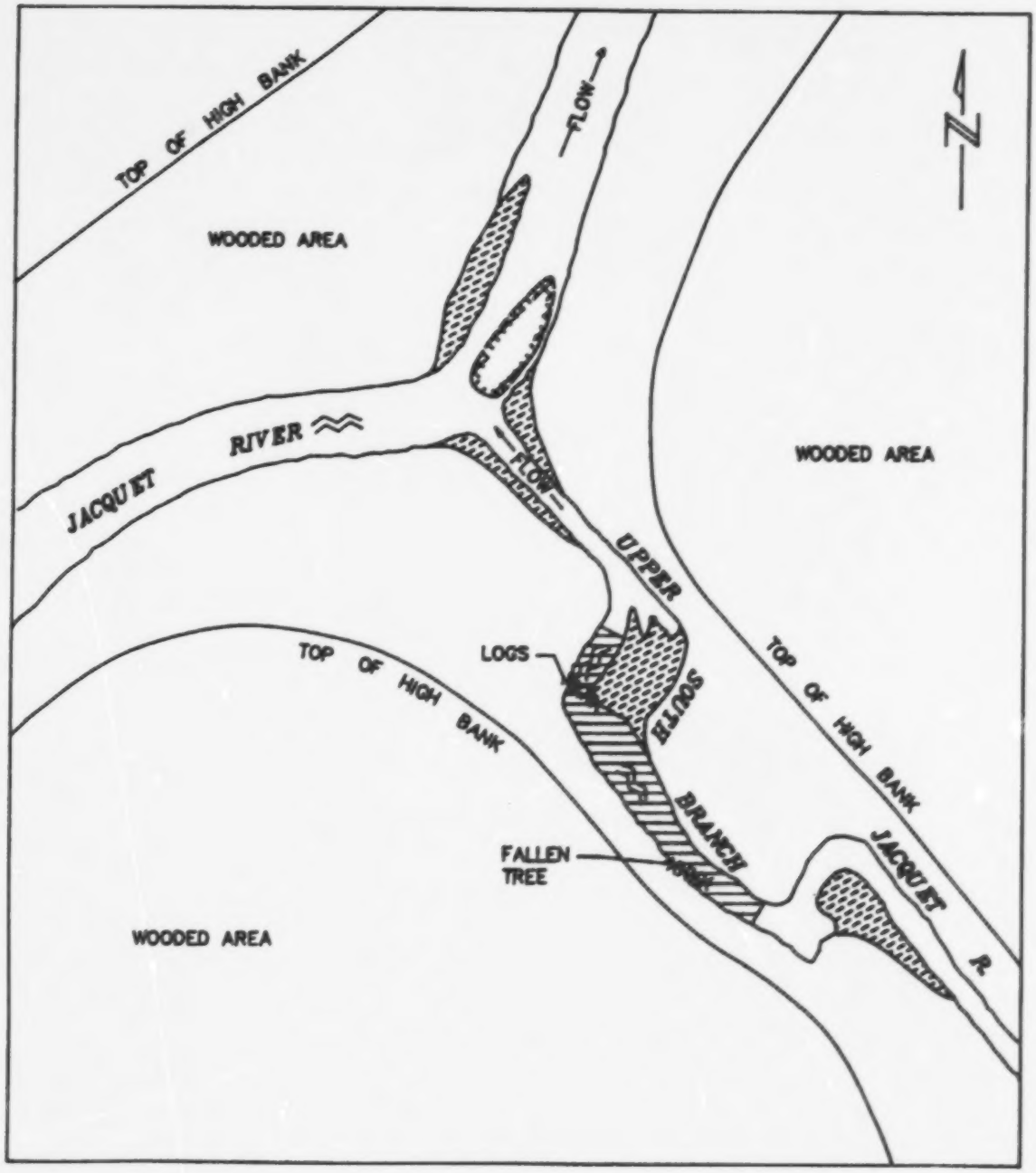
LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 17, JACQUET RIVER
August 27, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	6.4	6.1	2.90	F		E	(P)
2	6.8	6.5	3.99	M	0+	D,P	(F)
3	7.7	7.3	5.37	M	0+	T,C,D	(F)

Stomach Contents: (F) Full, (P) Partial
C-Coleoptera, D-Diptera, E-Ephemeroptera,
P-Plecoptera, T-Trichoptera

FIG. 3.18 FISH SAMPLING STATION, SITE 18, UPPER SOUTH BRANCH JACQUET RIVER, AUGUST 28,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 10 20 m (APPROX.)
TOPOGRAPHIC MAP 21-O/9
MILITARY GRID 084 903

TABLE 3.45

ELECTROSEINING DATA

SITE 18, UPPER SOUTH BRANCH JACQUET RIVER
August 28, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (35)	Sweep 2 (33)	Sweep 3 (36)	Sweep 4 (30)	Total
Atlantic Salmon					
fry					
small parr	3	0	1	1	5
large parr	1	1	1	0	3
total parr	4	1	2	1	8
Brook Trout	10	6	8	1	25
Cyprinidae					
American Eel	1	3	4	1	9
Threespine Stickleback					
Slimy Sculpin	16	6	10	6	38
Total Fish	31	16	24	9	80

TABLE 3.46

ESTIMATED FISH DENSITIES

SITE 18, UPPER SOUTH BRANCH JACQUET RIVER
August 28, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry				
small parr	5	6.1	3.4	
large parr	3	3.7	2.1	
total parr	8	9.8	5.5	
Brook Trout	25	30.7	17.2	
Cyprinidae				
American Eel	9			5.0
Threespine Stickleback				
Slimy Sculpin	38			21.3
TOTAL FISH*	80	115.0 (variance-592.96)	64.6	

*Sampling area - 178m²
69.5% of Estimated Total Population captured after 4 sweeps

TABLE 3.47

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 18, UPPER SOUTH BRANCH JACQUET RIVER
August 28, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	8.5	8.0	5.8	F	1+	T,E,S,G,Ch	(F)
2	9.9	9.3	9.94	M	1+	E	(P)
3	13.7	12.8	30.54	M	2+	T,E	(P)
4	12.4	11.5	21.28	M	2+	T,Ch	(F)

Stomach Contents: (F) Full, (P) Partial
Ch-Chironomidae, G-Gastropoda, E-Ephemeroptera,
S-Simuliidae, T-Trichoptera

TABLE 3.48

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 18, UPPER SOUTH BRANCH JACQUET RIVER
August 28, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	15.1	14.5	46.35	M	2+	E,T,P,N	(F)
2	15.4	14.9	48.94	M	2+	E,T,N	(F)
3	12.2	11.7	18.83	M	1+	E,C,P	(F)
4	8.8	8.4	7.59	F	1+	T,C	(P)
5	6.4	6.1	3.33	M	0+	E,P,T,Ch	(F)
6	5.5	5.3	1.98	F		T,Ch	(F)
7	5.2	5.0	1.75	F		T,Ch	(F)

Stomach Contents: (F) Full, (P) Partial
C-Coleoptera, Ch-Chironomidae, E-Ephemeroptera,
N-Nematoda, P-Plecoptera, T-Trichoptera

FIG. 3.19 FISH SAMPLING STATION, SITE 19, LOWER MCNAIR BROOK, AUGUST 28,1984

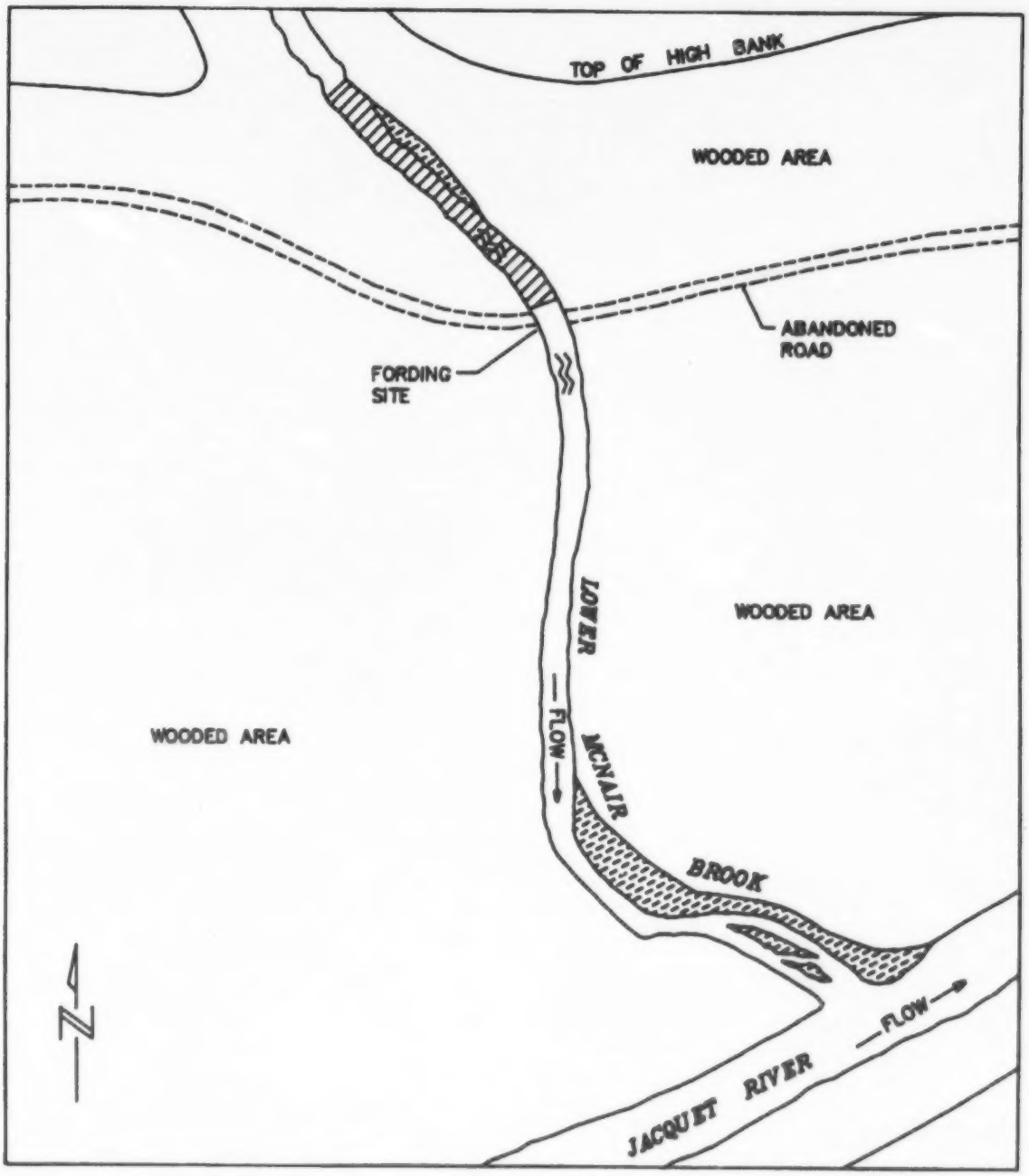


TABLE 3.49

ELECTROSEINING DATA

SITE 19, LOWER MCNAIR BROOK
August 28, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 (34)	Sweep 2 (30)	Sweep 3 (31)	Sweep 4 ( )	Total
Atlantic Salmon					
fry	0	1	0		1
small parr	2	3	0		5
large parr	2	0	0		2
total parr	4	3	0		7
Brook Trout	20	16	6		42
Cyprinidae					
American Eel	0	1	2		3
Threespine Stickleback					
Slimy Sculpin	8	9	2		19
Total Fish	32	30	10		72

TABLE 3.50

ESTIMATED FISH DENSITIES

SITE 19, LOWER MCNAIR BROOK
August 28, 1984

SPECIES	Total Number Captured	Population Estimate	Density per 100m²	Min.Density per 100m²
Atlantic Salmon				
fry	1			0.3
small parr	5	5.9	1.9	
large parr	2			0.6
total parr	7	7.4	2.3	
Brook Trout	42	53.1 (variance-126.99)	16.9	
Cyprinidae				
American Eel	3			1.0
Threespine Stickleback				
Slimy Sculpin	19			6.0
TOTAL FISH*	72	94.8 (variance-270.34)	30.1	

*Sampling area - 315m²
76.0% of Estimated Total Population captured after 3 sweeps

TABLE 3.51

LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF JUVENILE ATLANTIC SALMON

SITE 19, LOWER MCNAIR BROOK
August 28, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	5.8	5.3	2.04	M	0+	E,T,	(F)
2	13.9	12.9	26.74	F	2+	T,N,	(P)
3	9.1	8.5	7.59	F	1+		

Stomach Contents: (F) Full, (P) Partial
E-Ephemeroptera, N-Nematoda, T-Trichoptera

TABLE 3.52

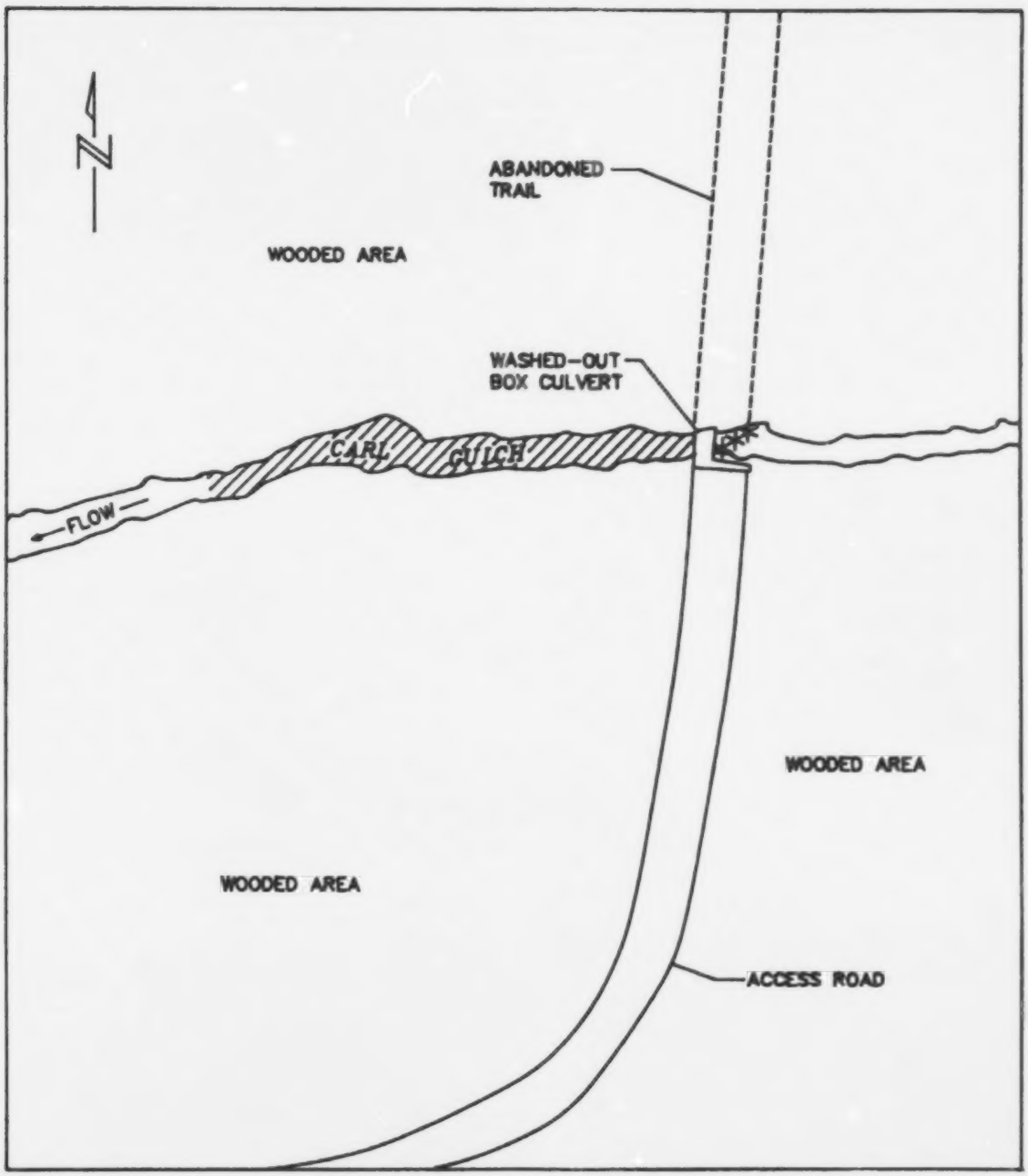
LENGTH, WEIGHT, SEX, AGE, AND
STOMACH CONTENTS OF BROOK TROUT

SITE 19, LOWER MCNAIR BROOK
August 28, 1984

Specimen Number	Length (cm) Total	Fork	Weight (g)	Sex	Age (yr)	Stomach Content	
1	5.9	5.6	2.00	M		E,P,D,T	(F)
2	7.3	7.0	4.84	F	0+	T	(P)
3	6.2	5.9	3.00	M		E,P,C,D	(F)
4	9.3	9.0	9.12	M	1+	T	(F)
5	10.0	9.7	11.06	F	1+		(E)
6	15.3	14.9	42.80	F	1+	T,C,R	(F)
7	16.5	16.0	45.09	F	2+	T,D,O,E,G	(F)
8	21.8	21.4	144.45	F	2+	P,O	(P)

Stomach Contents: (F) Full, (P) Partial, (E) Empty
C-Coleoptera, D-Diptera, E-Epheroptera,
G-Gastropoda, O-Odonata, P-Plecoptera,
R-Rhagionidae, T-Trichoptera

FIG. 3.20 FISH SAMPLING STATION, SITE 20, CARL GULCH, AUGUST 29,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 5 10 m (APPROX.)

TOPOGRAPHIC MAP 21-O/9

MILITARY GRID 183 854

TABLE 3.53

ELECTROSEINING DATA

SITE 20, CARL GULCH
August 29, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 ( )	Sweep 2 ( )	Sweep 3 ( )	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	6				6
Cyprinidae	9				9
American Eel					
Threespine Stickleback					
Slimy Sculpin					
Total Fish	15				15

Spot Check Only Area 60m²

FIG. 3.21 FISH SAMPLING STATION, SITE 21, UNNAMED TRIBUTARY TO UPPER SOUTH BRANCH JACQUET RIVER, AUGUST 29,1984

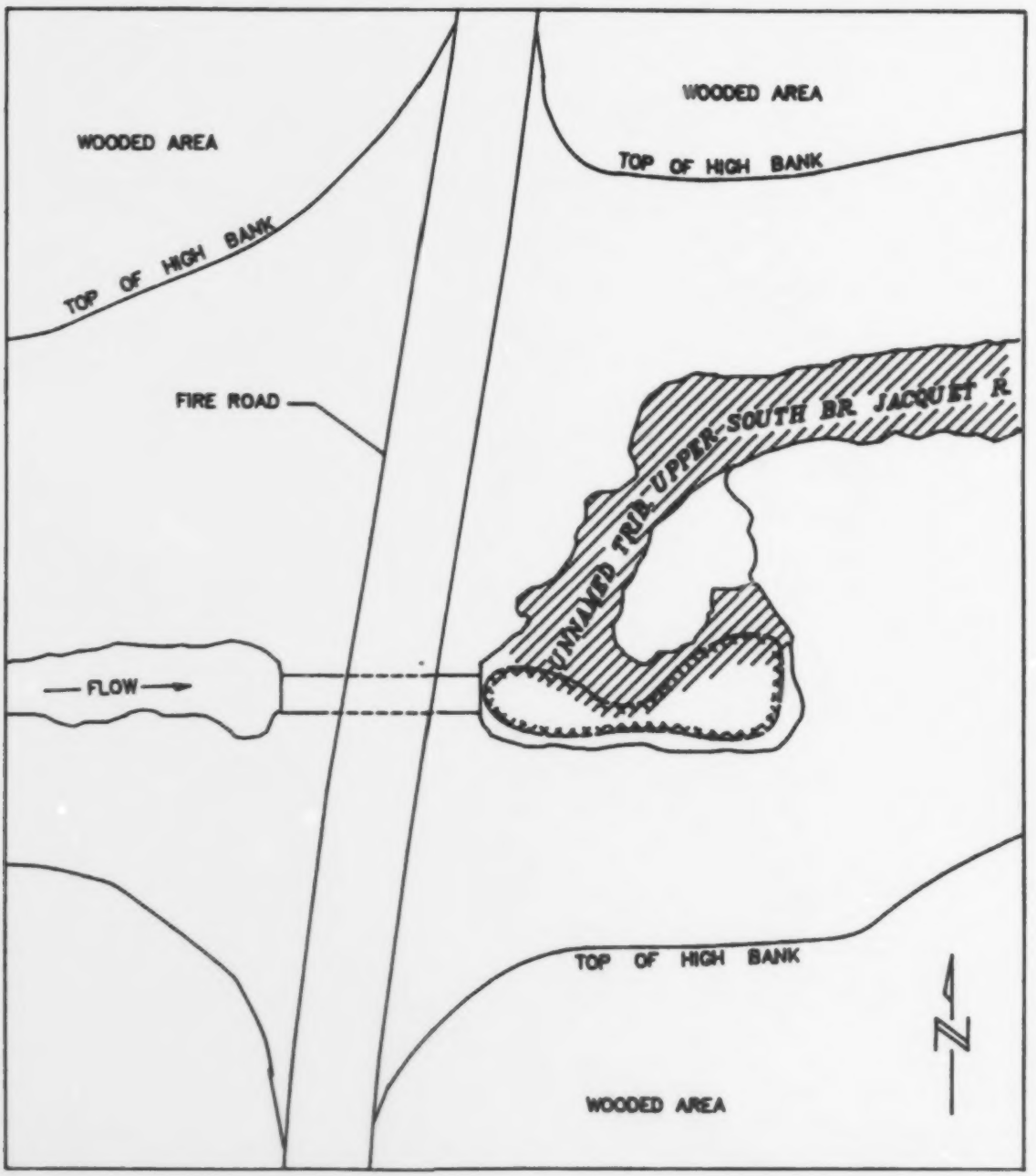


TABLE 3.54

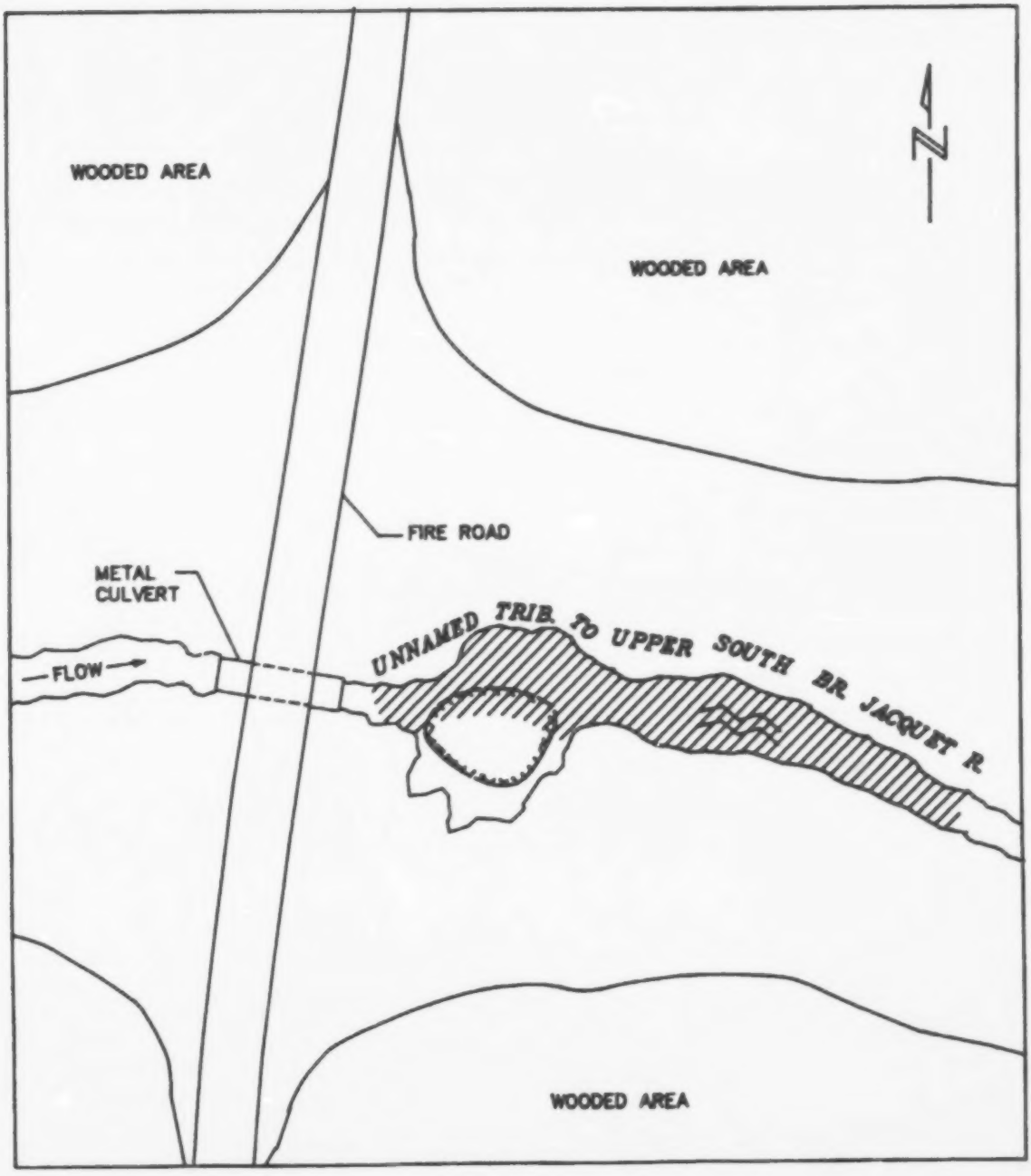
ELECTROSEINING DATA

SITE 21, UNNAMED TRIBUTARY to UPPER SOUTH BRANCH JACQUET RIVER
August 28, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 ( )	Sweep 2 ( )	Sweep 3 ( )	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	41				41
Cyprinidae					
American Eel					
Threespine Stickleback					
Slimy Sculpin					
Total Fish	41				41

Spot Check

FIG. 3.22 FISH SAMPLING STATION, SITE 22, UNNAMED TRIBUTARY TO UPPER SOUTH BRANCH JACQUET RIVER, AUGUST 29,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 5 10 m (APPROX.)
TOPOGRAPHIC MAP 21-O/9
MILITARY GRID 088 859

TABLE 3.55

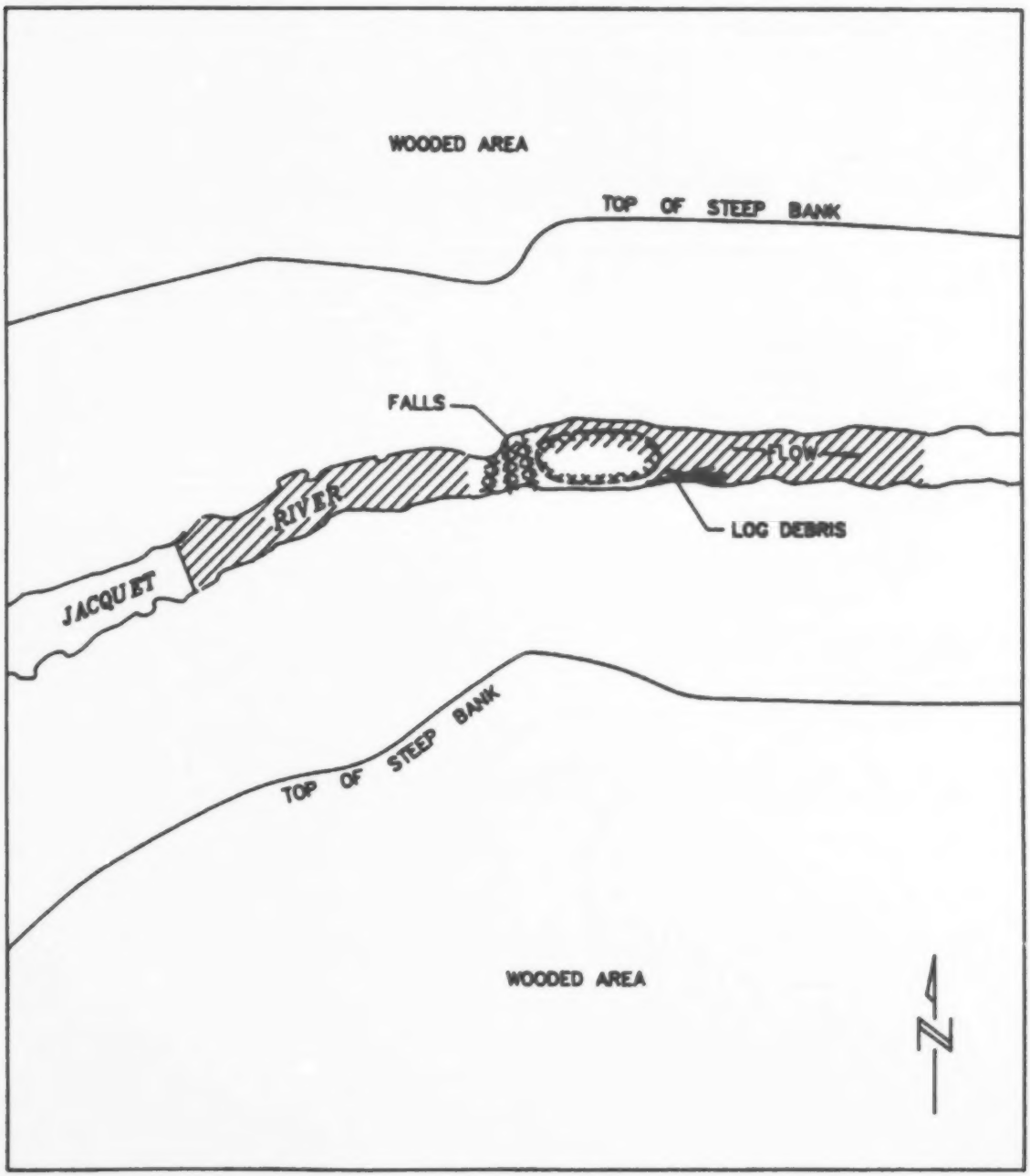
ELECTROSEINING DATA

SITE 22, UNNAMED TRIBUTARY to UPPER SOUTH BRANCH JACQUET RIVER
August 29, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 ( )	Sweep 2 ( )	Sweep 3 ( )	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	40				40
Cyprinidae					
American Eel					
Threespine Stickleback					
Slimy Sculpin					
Total Fish	40				40

Spot Check Only Area 75m^2

FIG. 3.23 FISH SAMPLING STATION, SITE 23, JACQUET RIVER, AUGUST 30,1984



LEGEND

- ELECTROFISHING AREA
- RIFFLE AREA
- POOL
- BARRIER
- GRAVEL

SCALE 0 10 20 m (APPROX.)

TOPOGRAPHIC MAP 21-O/9

MILITARY GRID 998 838

TABLE 3.56

ELECTROSEINING DATA

SITE 23, JACQUET RIVER
August 30, 1984

Species	Number of Fish Captured by Sweep (sweep time in min in parentheses)				
	Sweep 1 ( )	Sweep 2 ( )	Sweep 3 ( )	Sweep 4 ( )	Total
Atlantic Salmon					
fry					
small parr					
large parr					
total parr					
Brook Trout	21				21
Cyprinidae					
American Eel	3				3
Threespine Stickleback					
Slimy Sculpin	3				3
Total Fish	27				27

Spot Check Only Area 360m²

TABLE 3.57

SPECIES OF FISH CAPTURED
JACQUET RIVER WATERSHED
AUGUST, 1984

Scientific Name	Common Name
Anguillidae	
Anguilla rostrata	American eel
Salmonidae	
Salmo salar	Atlantic salmon
Salvelinus fontinalis	brook trout
Cyprinidae	
Couesius plumbeus	lake chub
Phoxinus eos	northern redbelly dace
Rhinichthys atratulus	blacknose dace
Semotilus corporalis	fallfish
S. margarita	pearl dace
Gasterosteidae	
Gasterosteus aculeatus	threespine stickleback
Cottidae	
Cottus cognatus	slimy sculpin